

THE AUTOMOBILE

Climbing "Giant's Despair" No Longer a Real Task By — A. G. Batchelder —



PHOTO
BY
PAUL
THOMPSON

WILKES-BARRE, PA., May 31—"Giant's Despair" is the rugged name given to Wilkes-Barre Mountain. It's a real climb, a mile and an eighth long, contains a sharp turn designated as the "Devil's Elbow," and, of course, has an "S" turn. The rise is some 700 feet, with grades that vary from 10 to 22 degrees, and the surface is uniformly good, more than average.

Once upon a time, in the early days of automobiles, more than one motor-driven vehicle discovered that the task was too great and therefore found it necessary to take another route. 'Twas

in the year 1906 that the mountain lost its terrors to automobilists, and few cars there were in that climb which failed to make the ascent. First of all was an English Daimler, driven by Harding; since then its figures of 2:16 1-5 being reduced each year by substantial cuts. Power and reliability are now synonymous.

In 1907 Walter White's White Steamer appropriated the honors in 1:49 4-5, and in 1908 the Chadwick Six, with Willie Hoppt at the wheel, accomplished the upward journey in 1:38 2-5.

To-day the big Benz from Germany, with its 120-horsepower,



Cars Were Given a Rolling Start and Were in Good Action When They Struck the Electric Tape

plunged up the incline in 1:31 3-5. Brown, the amateur enthusiast, being at the helm and apparently enjoying the reckless pursuit of the phantom goddess, fame.

Less than five seconds slower was the Chadwick Six, of half the horsepower of the foreigner and adroitly handled by Larzere. DePalma made a notable climb with his Fiat skeleton flyer, and fourth best was the sturdy Knox piloted by Dennison and endowed with only 50-horsepower.

But the real honors of the climb belong to the stock car participants, it now being possible for anyone—and such is the case in most instances—to buy for his own use cars similar in construction and ability. If one wants a powerful road traveler, he can be sure of getting it in the purchase of a duplicate of the six-cylinder National which climbed skyward in 1:45; or in

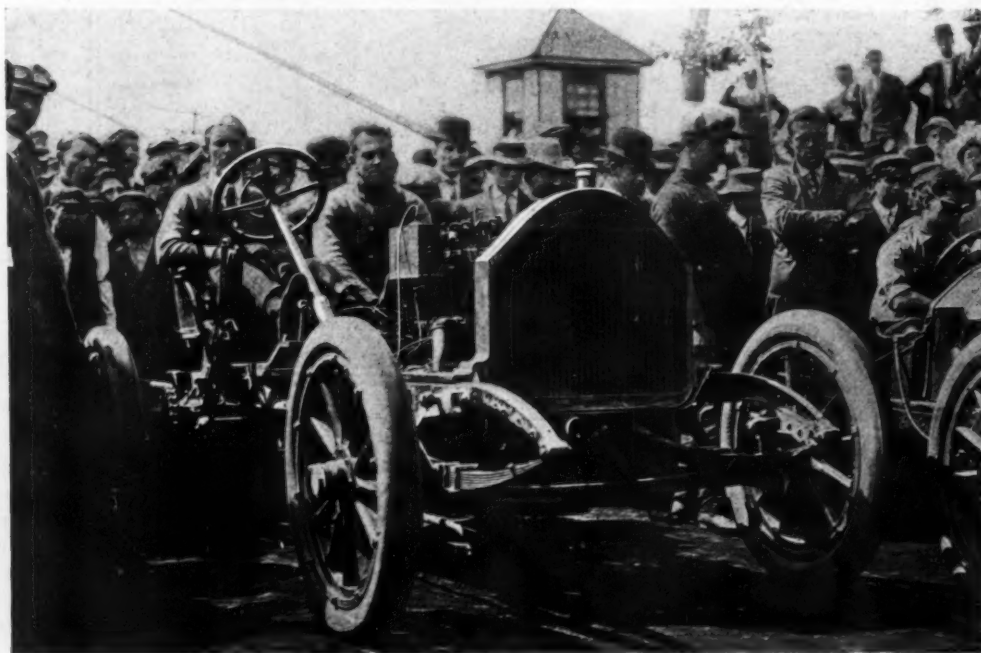
"fours" he might pick a 60-horsepower Stoddard-Dayton, which made the trip in 1:46 2-5. Still continuing in the "Big Fellow" bunch, one could select a Simplex with an ascent of 1:47 2-5; or a 40-horsepower Knox, the figures for which were 1:57 3-5.

Close up in to-day's list are Mathesons and American Roadsters, not forgetting that the smaller-powered cars consistently climbed at better than 30 miles an hour without distress or hesitation. Even a Babcock Electric only required 3 seconds more than 3 minutes to reach the mountain's top.

The fourth climb of Wilkes-Barre's club figured as a "National" event and the preparations for it were conscientious and almost complete. The contest committee, of which George F. Lee was chairman, with Wright, Steelman, Moore, Meixell, Wagner, and Lewis as his co-workers, struggled indefatigably, and only went

astray in one real particular. That was in the guarding of the course. Thousands swarmed from the base to the top of the mountain, swarmed over the road, and seemed to be utterly oblivious or unconscious of the danger from the juggernauts that flew by in dangerous proximity. The next time, says Chairman Lee, there will be men and muskets in plenty, and there will be ropes alongside the tortuous climb its whole length. Then the fools will be kept out of harm's way. That a score or more were not killed was miraculous. It will be remembered that these same fools flocked all over the road at the Vanderbilt race. Here is what a local paper said about it:

"Fully sixty thousand witnessed the exciting contests, and remained on the course from 7 o'clock this morning until the last car had gone down the hill. The crowd began to



Knox Driven by Dennison, Which Was the Winner of Two Events

arrive early, some of the most anxious ones remaining out all night so that they could get a vantage point—that is, a place where a machine might be wrecked or a driver killed.

"The race was a second Vanderbilt in point of crowd and excitement. The visitors arrived yesterday and flocked to the local hotels and garages. The Sterling last evening was like the Garden City Hotel on the night before the much larger Long Island event.

"This morning everyone was out bright and early, and until 9 o'clock the cars kept going up the hill. It is estimated that there were fully two thousand cars parked along the course and neighboring fields. The crowd surpassed that of all previous years."

Yes, certainly it was not unlike a Vanderbilt race in the manner in which the crowd declined to give up the road to the contestants. Starter "Wag" expostulated and cursed and even fought in trying to keep the course clear near the start. Farther up it was even worse. But Providence must have been interested, for most fortunately no one was harmed and the catastrophes were minor in character.

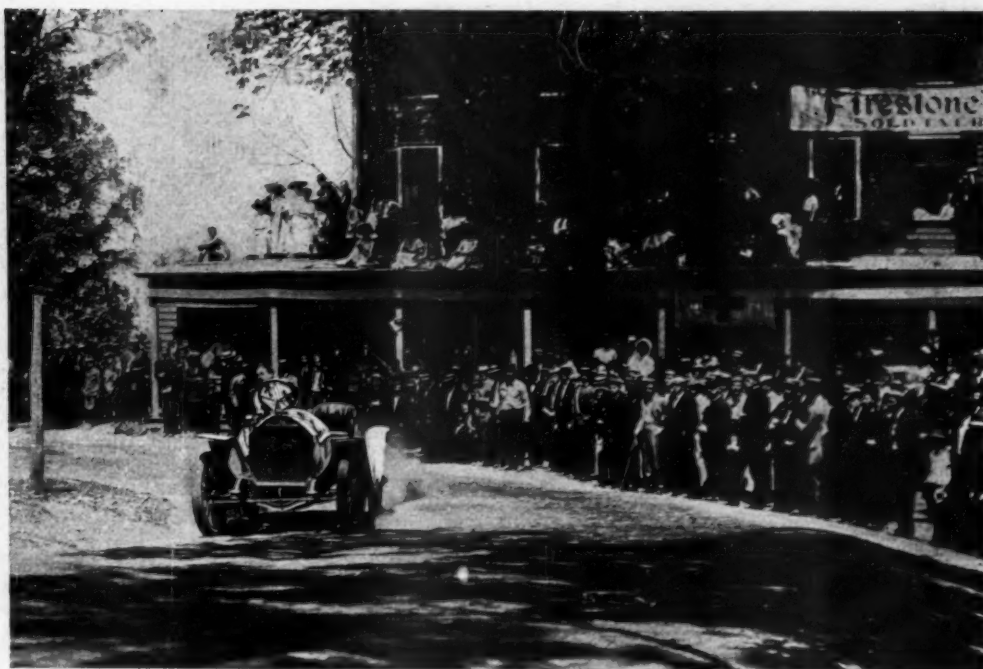
Chevrolet, who is not noted for his caution, had a spill while taking a curve pretty fast, and DePalma went into the ditch, but neither suffered any damage, and the only man hurt was a spectator who fell off a wall and sprained his ankle.

Chairman F. B. Hower, of the A. A. A. contest board, lent his official presence to the occasion, the referee of which was Samuel B. Stevens, well known as an owner and driver of fast racing cars. These two had some embarrassment in disposing of the opportunities of Mrs. Joan Cuneo, who had an awful time be-

cause she was unable to obtain permission to participate in the speedfest. But there was "nothing doing" in her case, and so she had to be content with a ride down the hill seated alongside a mere man.

For three days before the climb, the contestants had the opportunity of practicing on the course, the result being that while some obtained experience without damage to themselves, several were put out of the running through accidents which luckily involved only the cars themselves.

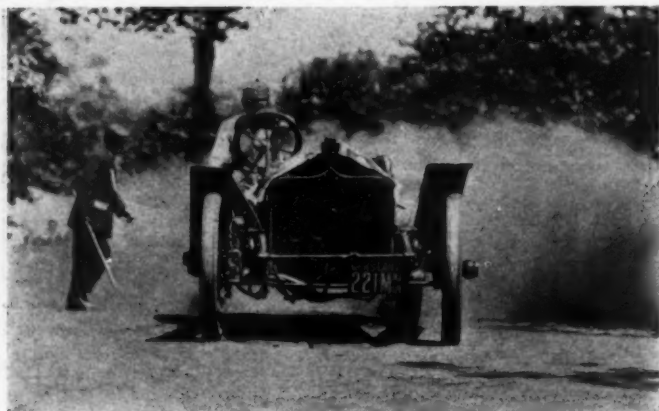
From a spectacular point of view the free-for-all held the public interest. The thousands wanted to see the cars extended to the danger limit and beyond. Amateur Brown is a pretty good pilot for the big Benz and there were gasps in plenty as he rushed upward through the lanes of people and around



Stoddard-Dayton, a Two-Time Winner, Rounding Mountain House Curve



Charles Basle, Driving Matheson, Finishing at the Official Stand on the Top of Giant's Despair



"National" Winner of the Six-Cylinder Event

the hazardous curves. Larzelere made almost as thrilling a climb with the Chadwick, which he subsequently repeated in the invitation event with time that was one-fifth of a second better. DePalma had an innings of ill luck. On his first attempt the electric timer failed to work; the second time he suffered a puncture, and on his third opportunity his lightweight racer nearly left the road.

The motorcyclists had a look-in and both events were captured by Wray with an Indian, his best in 1:41 2-5. The summary:

FOUR-CYLINDER GASOLINE STOCK, \$4,000 OR OVER

Pos.	Car.	H.P.	Name of Entrant.	Driver.	Time.
1.	Simplex	90	Simplex Auto Co.	Watson	1:48 3-5

SIX-CYLINDER GASOLINE STOCK, \$3,000 OR OVER

1.	National	60	Natl. M. Vehicle Co.	Merz	1:48
2.	Oldsmobile	60	Olds Motor Works	Berger	2:04 1-5

GASOLINE STOCK, FROM \$3,001 TO AND INCLUDING \$4,000

1.	Stoddard-Dayton	60	Dayton Motor Car Co.	Miller	1:50 1-5
2.	American Roadster	60	Louis G. Vogel	Haupt	2:10 1-5

GASOLINE STOCK, \$2,001 TO \$3,000—HOLLENBACK TROPHY

1.	Knox	40	Knox Auto. Co.	Dennison	1:57 3-5
2.	Matheson	50	Matheson Auto. Co.	Basle	2:00
3.	Stoddard-Dayton	45	Dayton Motor Car Co.	Wright	2:03 3-5
4.	Matheson	50	Matheson Auto. Co.	Basle	2:04 4-5
5.	National	35	Natl. M. Vehicle Co.	Aitken	2:11 1-5
6.	Knox	30	Robert Johnston	Johnston	2:33

GASOLINE STOCK CARS, \$1,251 TO AND INCLUDING \$2,000

1.	Oakland	40	Oakland M. Car Co.	Bauer	2:11 4-5
0.	Buick	30	Buick Motor Co.	Chevrolet	*

* Did not finish.

GASOLINE STOCK CARS, FROM \$851 TO AND INCLUDING \$1,250

1.	Buick	18	Buick Motor Co.	Chevrolet	2:34 2-5
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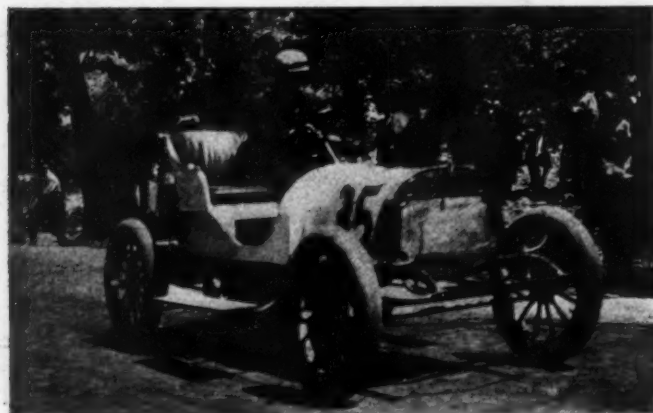
GASOLINE STOCK CARS, \$850 OR UNDER

1.	Maxwell	22	Maxwell-Briscoe M. Co.	See	2:38 1-5
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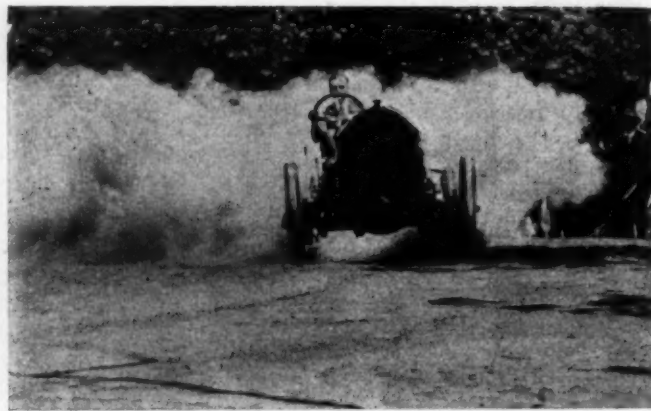
GASOLINE STOCK CHASSIS, SPECIAL CLASS

Piston displacement of 451 cubic inches and not to exceed 600. Minimum weight of car, 2,400 pounds.

1.	Knox	50	Knox Auto. Co.	Dennison	1:40 4-5
2.	National	60	Natl. M. Vehicle Co.	Merz	1:47 3-5
3.	Stoddard-Dayton	60	Dayton M. Car Co.	Miller	1:48



Babcock Electric Which Performed Creditably



Pilot Larzelere Driving the Big Chadwick

GASOLINE STOCK CHASSIS, SPECIAL CLASS

Piston displacement of 301 cubic inches and not to exceed 450. Minimum weight of car, 2,100 pounds.

1.	Stoddard-Dayton	45	Dayton M. Car Co.	Wright	2:01
2.	National	35	Natl. M. Vehicle Co.	Aitken	2:03 4-5
3.	Matheson	50	Matheson Auto. Co.	Basle	2:11
4.	Knox	40	Knox Auto. Co.	Dennison	2:18
5.	Knox	40	Knox Auto. Co.	Dennison	2:23 4-5

FREE-FOR-ALL—CARS OF ALL TYPES AND MOTIVE POWER

1.	Benz	120	Jesse Froelich	Brown	1:31 3-5
2.	Chadwick	60	Lee S. Chadwick	Larzelere	1:36
3.	Fiat	60	Fiat Auto. Co.	DePalma	1:36 3-5
4.	Knox	50	Knox Auto. Co.	Dennison	1:38
5.	National	60	Natl. M. Vehicle Co.	Merz	1:45
6.	Stoddard-Dayton	60	Dayton M. Car Co.	Miller	1:46 2-5
7.	Simplex	90	Simplex Auto Co.	Watson	1:47 2-5
8.	Babcock Electric	15	Lewis G. Vogel	Peck	3:03

MEMBERS OF QUAKER CITY MOTOR CLUB ONLY

1.	Knox	50	K. B. Harwood	Belcher	1:40 1-5
2.	Oldsmobile	60	W. T. Taylor	Berger	2:02 3-5
3.	American	60	Louis G. Vogel	Haupt	2:07 2-5
4.	Knox	40	Knox Auto. Co.	LaFluer	2:26 1-5

MEMBERS OF WILKES-BARRE AUTOMOBILE CLUB ONLY

1.	Knox	30	Robert Johnston	Johnston	2:21
2.	Oldsmobile	40	William S. Lee	Habblett	2:26
3.	Bulck	30	E. A. Wilkie	Wilkie	2:34 2-5
4.	Regal	30	W. S. Moore	Moore	3:18

SPECIAL INVITATION—(WINNER OF FREE-FOR-ALL BARRED)

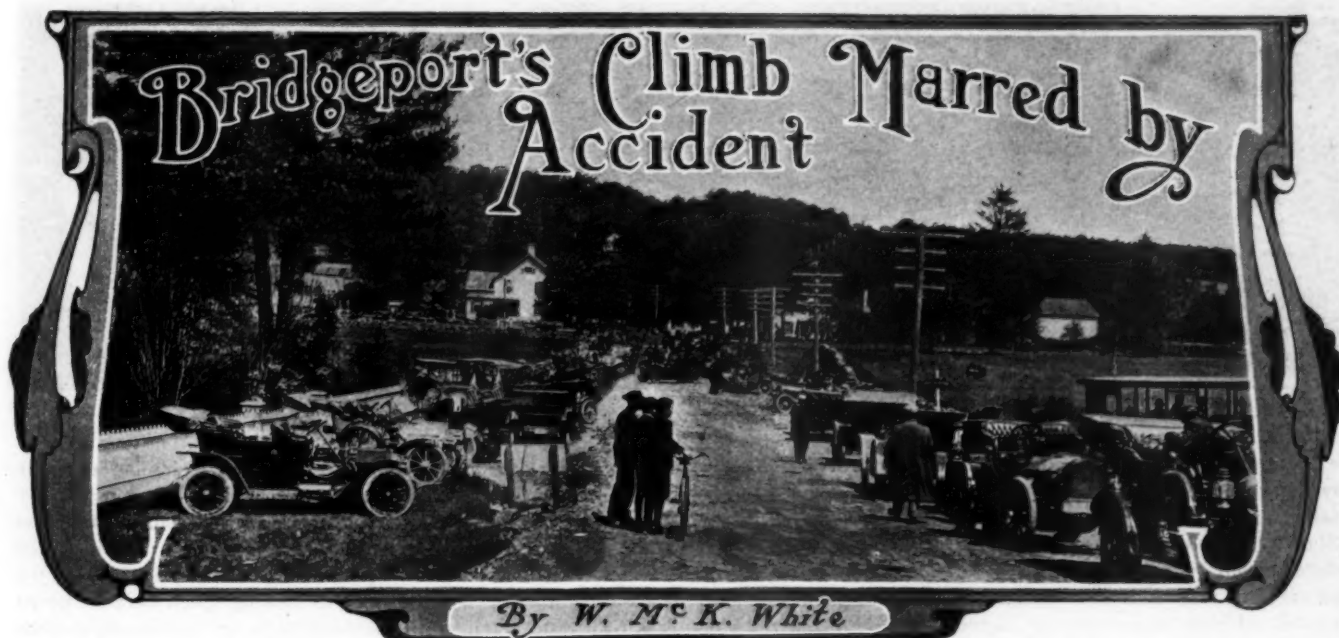
1.	Chadwick	60	Lee S. Chadwick	Larzelere	1:35 4-5
2.	Fiat	60	Fiat Auto. Co.	DePalma	1:40 1-5
3.	Knox	50	Knox Auto. Co.	Dennison	1:41 1-5
4.	National	60	Natl. M. Vehicle Co.	Merz	1:48 4-5
5.	Corbin	30	Corbin M. Vehicle Co.	Swan	1:55 2-5
6.	Matheson	50	Matheson Auto. Co.	Basle	1:58

S. F. EDGE COMES TO AMERICA

S. F. Edge, the well-known British autoist, is taking a look at things American, having arrived Friday last on the *Celtic*. Mr. Edge will be on this side possibly for a fortnight, and during that period he intends to make the most of his time. His American impressions will be well worth the reading, and it is a certainty that such a good publicity expositor as he is will not neglect the opportunity to supply interesting "copy."



Chairman Hower and President Lee Talking It Over



Scene at the Bottom of Sport Hill, Typically New England, with Stone Fences and White Painted Houses

BRIDGEPORT, CONN., May 31.—Sport Hill, the steepest within many miles of this city, was to-day the scene of the third annual climb of the Automobile Club of Bridgeport, and up its perfectly groomed slopes records made in previous events were completely shattered. Seven times did the performance which was considered phenomenal and best last year fall before the swifter cars this morning, and had not the free-for-all been most unfortunately interrupted it is probable that the former record would have been still further relegated to history. Tried racing cars and well prepared stock touring cars, roadsters or stripped chassis, competed with success, many driven by amateurs, until the best previous time of 1:17 was lowered to 1:09 3-5, with six intermediate marks, and two others which equalled the 1908 best.

Joe Tracy in 1907 set up a standard of 1:24 2-5 in a Locomobile Vanderbilt racer; and in the Isotta, which captured many laurels in 1908, Al Poole cut many seconds from that, placing the record at 1:17. To beat this trip of Poole's was the problem before those who rode to-day over a road perhaps slightly better than previously, and with weather conditions ideal. To H. W. Webb in a Panhard of 120-horsepower went the premier honors, his time of 1:09 3-5 setting the new record.

A most unfortunate accident marred the affair just at its conclusion. In the free-for-all, with just two more cars to make the ascent, Glenn Ethridge started up in John H. Tyson's victorious Isotta, and at the worst turn of the course was going very fast. A combination of circumstances—high speed, sharp curve and skidding over the crown of the road—slew the big car into the ditch and before Ethridge could get it

completely under control it had started for the crowd at the roadside. Six men fell before or around it, all seriously injured, one of them possibly fatally, with broken legs and internal concussions. Bicycles were demolished, a tree cut off and a stone wall struck. William Walker, the mechanic, rolled off the car, but Ethridge kept his seat until the machine stopped and the engine was shut down. The militia cleared the course and doctors were soon at hand to minister to the wounded. Surgeons had been stationed at the curve, and fortunately there were others on the course. Touring cars were used to carry the men to the city hospitals after they had received temporary treatment at the roadside. The contest was declared finished. It was the opinion that the Isotta had done most of the damage by side-swiping, rather than by actually running over any one, and no blame was attached to Ethridge. It had been difficult at all times to police the course, for there were at least 10,000 persons massed along a mile of roadway, and the company of the Coast Artillery, 14th Connecticut, under Captain Hawes, did its best to keep the spectators back.

Sport Hill, an even mile in length, has a location permitting of a rolling start, then a comparatively easy grade on a straightaway of about 150 yards, a slight curve to the left and a steeper ascent for 100 yards. The real test is just above this point, where an "S" curve occurs upon a grade of about 12 per cent. All of the faster cars swayed terribly in getting around the lower half and more than once the crowds thought that the machines would turn over. It was just such an occurrence that happened to the big Isotta. From the upper part of this difficult section there was a nearly straight run to



Bourque (Knox) Rounding a Turn



Chalmers-Detroit, Winner of the \$3,000 Runabout Class, Crossing the Bridge Near the Starting Point

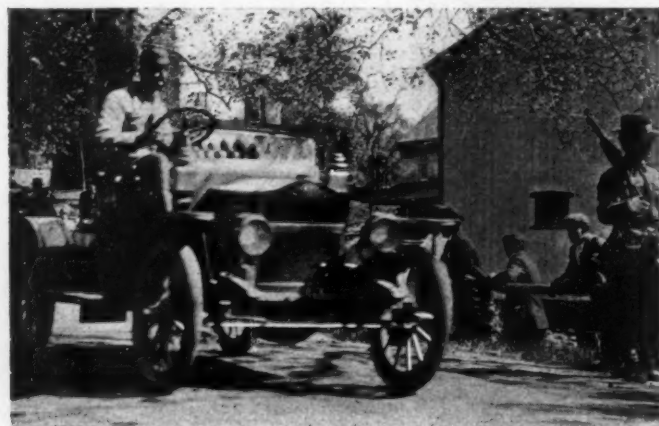
the finish at the top on a practically level stretch. All along the way there were automobiles parked, perhaps 250 lining the upper reaches, and at vantage points the crowd was thickest.

Shortly after 8 o'clock the first car was sent away. It was a little Maxwell Junior in a class for gasoline cars costing under \$850, and it was followed by one of the new four-cylinder Maxwells, driven respectively by Barnes and Goldthwaite. The latter won in the good time of 2:19.4-5.

The record for the course had its first attack in the fifth event, a class for runabouts of the same price division as the touring cars in the fourth, and Lorimer piloted a Chalmers-Detroit roadster up the hill in 1:16.2-5, 3-5, of a second better than ever before done officially. Harry Tuttle, in a 45-horsepower Stoddard-Dayton roadster, was second in 1:23, and C. B. Tiley, in a "Tiley," a newcomer and the latest production of Bridgeport, was third in 1:27.2-5. The Tiley car has a "short" four-cylinder motor of 5-inch bore and 4.3-4-inch stroke and full floating rear axles with shaft drive.

The first large field of the day was brought out in the eighth event, one for amateur drivers of gasoline cars, and it had seven starters and six finishers. It was in this class that the big Panhard had its inning and made the record. The car went up very easily, and in comparison with others which traveled at high speed it had less trouble on the curves, hardly skidding at the "S" turn, although it went by like a flash of blue. Broesel in the Simplex was second, his time being 1:16, slightly better than when he won the class just ahead. Alden in a Chalmers-Detroit was third in 1:17.1-5, and Doig in a Stearns fourth in 1:21.2-5. Another Stearns, driven by McNiel, was but 2-5 of a second slower than Doig. The Tiley car showed consistency by ascending in exactly the same time as before, 1:27.2-5.

That the free-for-all was going to furnish excitement was evident as soon as it started, because of the remarkable manner in which previous records became back numbers. Bourque flew up in 1:10.1-5 in the Vanderbilt Knox car of 38-horsepower,



Maxwell, Winner of the Little Runabout Class

closely followed by Coffey in the stripped Columbia racer in 1:11.1-5, and then by Lorimer in a Chalmers-Detroit in 1:17. Harry Cobe had a six-cylinder Lozier in action, and its time was 1:22.1-5. Alden had a fast Chalmers-Detroit next, and it gained the under-the-record class by covering the course in 1:15.3-5. The Renault racer had difficulty in making speed because of its lack of a differential, and it skidded badly on the curves, thereby losing traction and time. Near the finish a tire blew out and that further retarded it, so that its time was snapped at 1:22.3-5. Following the Renault was the Isotta driven by Ethridge, and after it would have been the Panhard and another Isotta.

A. L. Riker acted as referee. The contest committee of the club is composed of: Chairman, Ralph M. Sperry, G. S. Bryan, F. W. Bolande, J. B. Lyford, F. A. Rantz, A. K. L. Watson, A. H. Canfield, W. W. Nichols, H. M. Lyon, H. B. Stoddard, F. T. Staples, B. H. Edwards, H. D. Gates, A. McNeil, Jr.; R. C. Sherwood, F. L. Mills, F. A. Strong, E. W. Hanke, E. W. Fairchild, H. D. Miller.

GASOLINE STOCK CARS, \$4,001 AND OVER

No.	Car.	H.P.	Cyl.	Entrant.	Driver.	Time.
36	Simplex	53	4	Carl A. Broesel	Broesel	1:16.3-5
42	Isotta	50	4	Bradley	Pepperday	1:17

STOCK CARS, \$3,001 TO AND INCLUDING \$4,000

35	A-K	48	4	S. E. Mooskovic	Hughes	1:18
20	P. & S.	51	6	P. & S. Mfg. Co.	Lescault	1:33.3-4

STOCK RUNABOUTS, \$2,001 TO AND INCLUDING \$3,000

18	Chalmers-Det.	40	4	C. H. Page & Co.	Lorimer	1:16.2-5
17	Stoddard-Dayt.	45	4	Harry Tuttle	Tuttle	1:23
19	Tiley	30	4	C. B. Tiley	Tiley	1:28.2-5
16	Columbia	29	4	Bell Brothers	Coffey	1:28.3-5
15	Knox	38	4	Knox Auto Co.	Bourque	1:30.3-5

STOCK TOURING CARS, \$2,001 TO AND INCLUDING \$3,000

14	Chalmers-Det.	40	4	C. H. Page & Co.	Lorimer	1:20.2-5
11	Knox	38	4	Knox Auto Co.	Bourque	1:33.2-5

STOCK CARS, \$1,251 TO AND INCLUDING \$2,000

10	Buick	30	4	Buick M. C. Co.	Burman	1:20.1-5
7	Buick	30	4	G. M. Hammond	Hammond	1:37
9	Chalmers-Det.	40	4	W. A. Maynard	Maynard	1:53
41	Pullman	20	4	A. McMullen, Jr.	McMullen	2:20.1-5

STOCK CARS, \$851 TO AND INCLUDING \$1,250

5	Buick	18	4	Buick M. C. Co.	Burman	1:30
4	E-M-F	30	4	Buckley Auto Sta.	Buckley	1:45.4-5
40	Overland	30	4	Fairfield Auto Co.	Rubey	1:58.4-5

GASOLINE STOCK CARS, \$850 AND UNDER

2	Maxwell	20	4	Maxwell-Briscoe Co.	Goldthwaite	2:19.4-5
1	Maxwell	10	2	Miller M. C. Co.	Barnes	4:51.4-5

AMATEUR DRIVERS OF GASOLINE CARS

34	Panhard	120	4	H. W. Webb	Webb	1:09.3-5
37	Simplex	53	4	Carl A. Broesel	Broesel	1:16
21	Chalmers-Det.	40	4	J. V. Alden	Alden	1:17.1-5
22	Stearns	60	4	J. Doig	Doig	1:21.2-5
39	Stearns	60	4	K. W. McNiel	McNiel	1:21.4-5
23	Tiley	30	4	C. B. Tiley	Tiley	1:27.2-5

FREE-FOR-ALL

25	Knox	38	4	Knox Auto Co.	Bourque	1:10.1-5
26	Columbia	29	4	Bell Bros.	Coffey	1:11.1-5
30	Chalmers-Det.	40	4	C. H. Page & Co.	Alden	1:15.3-5
28	Chalmers-Det.	40	4	C. H. Page & Co.	Lorimer	1:17
29	Lozier	50	6	Lozier M. C. Co.	Cobe	1:22.1-5
31	Renault	60	4	Bpt. Vehicle Co.	Rasslovitch	1:22.3-5
32	Isotta	50	4	J. H. Tyson	Ethridge	*

*Did not finish.

QUINTETTE OF CARS LEAVE NEW YORK FOR SEATTLE

TWO Fords, a Shawmut and an Acme, of America, and an Itala of Italy are en route from New York City to Seattle as the contestants in the ocean-to-ocean endurance contest for the M. Robert Guggenheim transcontinental trophy. At 3 o'clock Tuesday afternoon, June 1, when it was just noon in Seattle, President Taft pressed a button in the White House which gave signals in the metropolis and in the city on the Pacific coast, starting the contest in the East and the Alaska-Yukon-Pacific exposition in the West. When the telegraph instruments showed to the group on the City Hall steps that the President had pressed the golden key, Mayor George B. McClellan fired a shot from a golden revolver, starting the five cars on their long journey from the Atlantic Ocean to the city on Puget Sound. The contestants had been parked in front of the public building some time earlier, fully equipped for a long distance journey, but the enormous crowd which gathered was kept at a distance by a cordon of mounted and foot police. At the shot the machines pulled into line, and, following a police officer in a conspicuous yellow taxicab, proceeded up Broadway, through "Automobile Row" and on toward Poughkeepsie, the first stop for a night, whither they were preceded by a pacemaker.

The Fords attracted a great deal of attention, not only because of their size but also because of their general get-up. The motors had no mufflers, exhausting through an opening in the side of the hood into the air. The body consisted of two seats for the drivers, with a platform at the rear for carrying baggage and supplies, covered with a brown canvas. The chassis was stripped of everything not absolutely necessary, such as fenders and the running gear was painted a dull gray. Natural colors remained in all other parts, such as aluminum unfinished for the bodies, sheet iron unpainted hoods, and unpainted gas and oil lamps. Henry Ford was on hand to see that the little machines were started safely, assisted by his New York and Philadelphia branch managers, Gaston Plaintiff and Louis C. Block.

The big six-cylinder yellow Acme was the only representative of the six in the contest, all of the others being fours. This car is fitted with bucket seats for four people, and the big gasoline tank is between them. Tires are carried at the rear and supplies in large boxes on the running boards. The Acme was the

largest of the quintette, and carried a full load of passengers.

Shawmut was the fourth to leave the plaza in the line, and it was particularly noticeable because of its extra large wheels, using 40-inch wheels and tires, with a body for four men, tires and supplies being carried between the two seats. These are extra high at the back and have small side strips carefully upholstered to act as head-rests when one set of drivers takes a sleep. The car is painted white.

The only foreign representative is the Itala, which was entered at a late moment, but it was fully prepared, with a special demitonneau body for four passengers and with the supplies carried in the tonneau and the tires at the rear. It is painted a lead color and stripped down as much as possible. The Shawmut and Acme are the only ones carrying running boards and mudguards. All of the tourists started in conventional khaki uniforms.

A six-cylinder Ford roadster is being used as a pacemaker and carries the Automobile Club of America representative, and will go ahead of the cars as far as St. Louis. The competitors will not be allowed to pass it. The rules provide that the cars must stop each night at certain places which have been selected. The run on Tuesday was to Poughkeepsie, 73 miles; that on Wednesday to Syracuse, 207 miles; to-day, Thursday, to Buffalo, 150 miles; Friday to Toledo, 296 miles; Saturday to Chicago, 244 miles, and Sunday to St. Louis, 283 miles. From St. Louis the contest is a free-for-all one, the only requirement being that the cars must check at certain points en route to show that they have not cut the course. The engine base, cylinders, transmission case, steering gear, frame, front and rear axle of each contestant were stamped by the A. C. A. The following are the names of the cars with their horsepower, crews and tires:

No. 1—Ford, 20 horsepower, Frank Kullok, H. B. Harper. Firestone tires.

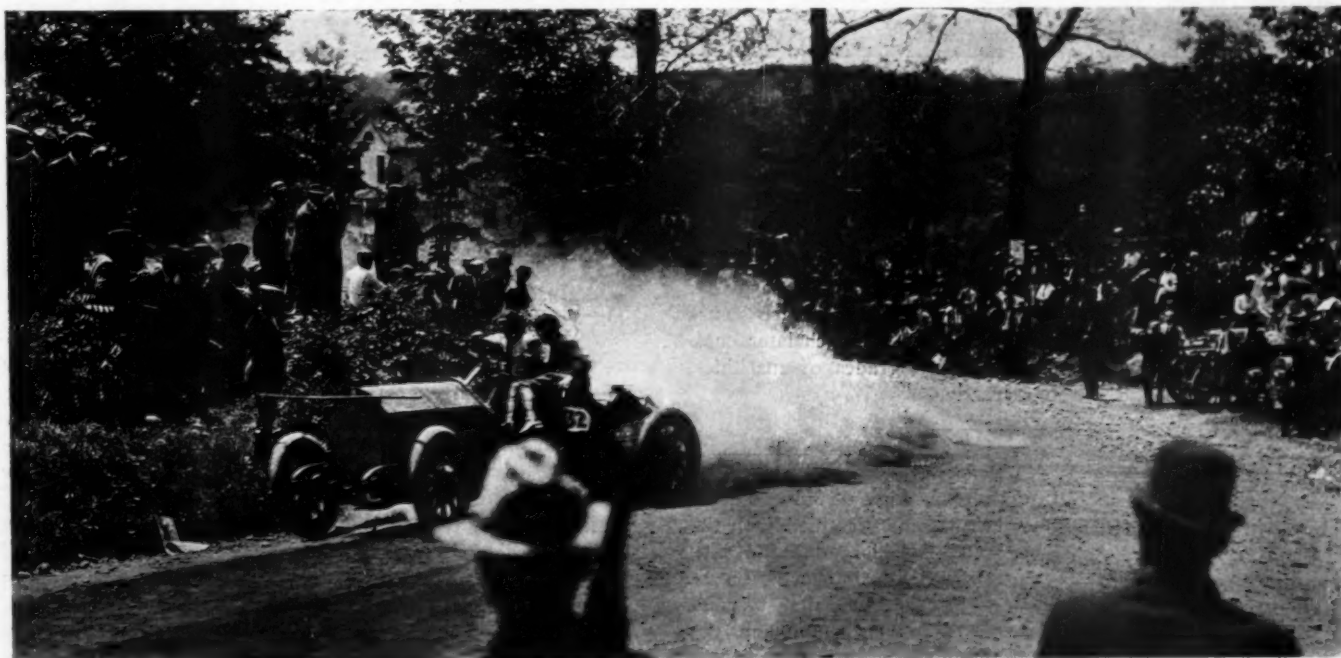
No. 2—Ford, 20 horsepower, B. W. Scott, C. J. Smith. Firestone tires.

No. 4—Acme, 45-50 horsepower, George Salzman, F. R. Sheets, Jerry Price, J. A. Hemstreet. Firestone tires.

No. 5—Shawmut, 40 horsepower, T. A. Pettingill, Earl Chapin, Robert Messer. Diamond Tires.

No. 6—Itala, 45 horsepower, Gus Lechleitner, F. B. Whittemore, Elbert Bellows. Continental tires.

Pacemaker—Ford, 40 horsepower, F. W. Teves, John H. Gerrie.



Ethridge Driving the Isotta at Bridgeport Climb, Just as It Began Its Fatal Dash Into the Ditch and the Spectators

FINAL ARGUMENT IN PROGRESS IN SELDEN SUIT

BEFORE Judge Hough in the United States Circuit Court, Southern District, there is being heard the final argument in the so-called Selden patent suit. One whole week was allotted for the concluding argument, it having begun on Friday last, and will end Friday of this week. From 10.30 A.M. to 5 P.M. daily, with an hour's intermission for lunch, the courtroom in the New York Post Office building has been thronged with the most notable array of attorneys, possibly, ever engaged in patent litigation at one time.

While it is true that any decision by Judge Hough may be carried to the Court of Appeals, the impression prevails that the effect of his decision will be substantial and satisfying to most of those concerned in the long-drawn-out story which began in the early days of automobiling in this country, due, to a great extent, to the organizing genius of the late George H. Day. Even opponents recognized the ability of this man.

The legal battle is in the form of suits brought by the Electric Vehicle Company and George B. Selden against the Ford Motor Company as manufacturer, John Wanamaker as dealer and agent, C. A. Duerr & Co. as dealer and agent, and the O. J. Gude Company as user of a so-called unlicensed car. Additional suits are against the American branch of Panhard & Levassor, of Paris, and Henry Neubauer, importer of foreign cars. Of course, the A. L. A. M. is the power behind the suits.

These various suits involving manufacturer and dealer and user and foreign maker and importer cover the entire situation. The legal talent is more than notable. The "licensed" list includes William Redding, well known for many years in patent matters; Betz, Sheffield, Bentley & Betz; Greeley & Austin, and Frederick P. Fish, of Washington, D. C., who will probably make the final presentation on Friday.

R. A. Parker and W. Benton Crisp represent the Ford Motor Company and also look after the interests of John Wanamaker, C. A. Duerr & Co., and the O. J. Gude Company. Cordoza & Nathan are also general attorneys for the Ford Company, while Coudert Brothers represent Panhard & Levassor and Henry Neubauer.

It is expected that the summing up Friday will attract many prominent men of the automobile industry, for brilliant arguments are assured. While it is considered probable that an appeal will go to the Court of Appeals, it is believed that nothing will ever reach the Supreme Court, which of its own volition only would interest itself in considering the evidence transmitted from the Circuit Court to the Court of Appeals.

A prodigious amount of testimony has been adduced from both sides, but it would appear from his occasional comments and rulings that Judge Hough has a fairly comprehensive idea of the importance of the suit being tried.

WILLYS ANNOUNCES TOLEDO PLANT PLANS

TOLEDO, O., June 2—The Overland Automobile Company has finally arranged all details for the purchase of the plant of the Pope Motor Car Company in this city, and prior to leaving for a seven weeks' trip to Europe, J. N. Willys, president of the Overland company, announced the policy of the company to be as follows:

"Within a few days contracts will be let for erecting a three-story addition to the Toledo plant, 80 x 35 feet. This new part is to be occupied by the Kinsey Manufacturing Company, of Dayton, O., whose plant is to be brought to this city. Almost the entire output of this concern, which consists of automobile parts, will be used by our company, and the working force of this department is to be increased to 500 men.

"The purchasing, engineering, and sales departments of the Overland company are to be brought to Toledo immediately, and within four months between 1,500 and 2,000 men are to be employed in the local factory.

"Orders have already been placed with us for 5,000 cars for next season, and the output will probably not be less than 10,000, and more likely 15,000. Of this number one-half are to be manufactured in Indianapolis.

"Contracts have already been let for over \$50,000 worth of new machinery, which is to be placed in the new department, and also to replace certain present machines which are somewhat antiquated, or at least can be replaced by much later ones. The present plan is to manufacture two grades of machines, selling for \$1,250 and \$1,500 respectively."

METZGER BECOMES INTERESTED IN WHEEL

CLEVELAND, May 31—William Metzger, who recently sold his interest in the E-M-F Company, has become identified with the Seaton spring wheel. As to the extent of his connection with the company nothing has yet been definitely announced, but it is understood that he will give considerable of his time to what will be known as the American Spring Wheel Company, the foreign patents of which will be handled by the International Spring Wheel Company. H. L. Olmstead has accepted the position of engineer for the American company.

AUTOMOBILES MET THE EMERGENCY

ATLANTA, GA., May 31—When the firemen of the Georgia Railway went on a strike and sewed up the entire line—some 307 miles long—so tight that never a wheel turned from May 23 to the night of May 29, they gave automobiles a wonderful opportunity to dash into the limelight.

The newspapers were the first ones to face the problem of getting into this territory. The night the strike became effective, the *Atlanta Constitution*, a morning paper, started a car down the Georgia road. The next afternoon the afternoon papers raced cars along the Georgia road, delivering seventy-eight miles down the line, despite roads softened by a two weeks' rain.

After various cars had tried their luck at fast running through the mud, the Southern Branch of the White Company cornered the paper transporting market; and five or six steamers were in service every day, carrying tons and tons of papers as long as the tie-up lasted. These newspaper cars carried mail as well as papers, and picked up an occasional passenger.

But the taxicabs and other motor cars did the main passenger business, traveling hundreds of miles up and down, parallel to the trainless Georgia Railway, and conveying to and fro such passengers as had urgent business and the wherewithal to pay.

NEW YORK WILL TREAT ORPHANS RIGHT

NEW YORK CITY, May 31—As the Annual Automobile Day approaches the interest increases and the prospects for the largest event in the past five years also improves. The committee is hard at work raising cash and securing the use of cars for the day. Up to date over 75 cars have been secured and more are in sight, of which 12 are taxicabs, 6 of the W. C. P. Yellow Cab line, and 6 red taxicabs.

Arrangements have been made with the management of Dreamland to throw the whole show wide open on that day, and there it is that luncheon will be served, although the problem of paying for it has not been solved.

A new plan of forming the parade and laying out the route will be adopted this year on account of the opening of the new Queensboro Bridge. The parade will form in the streets of Automobile Row, north of Columbus Circle.

Automobile Gasoline and Other Available Fuel

BY THOS. J. FAY

Part VIII

TIMING the spark is not all that has to be done in order that the mixture will afford the maximum result. If valves are used, as they are in 4-cycle motors, they have to be timed in such a way as to admit the charge to the fullest possible extent, and to allow the spent products of combustion to escape. In 2-cycle motors valves are not used, and in them it becomes a matter of perfection of design in order to afford the desired results. The relative advantages will be discussed at the proper time, and for the present it will be the aim to point out a certain similarity in them, in so far as the fuel problem is concerned.

In general, no matter what may be the way of admitting the mixture and scavenging, the results will only be the same if the mixture is admitted at the same time and if the exhaust is allowed to escape under similar conditions. If a motor, because of defects in the methods of design, will not afford the requisite time for the mixture to enter the cylinders or the exhaust to escape, the power stroke will not be so effective and the power of the motor will be reduced.

In such a motor, if the exhaust is imperfect, the speed will be reduced, and in consequence the power of the motor will be reduced, because the number of power strokes will be less. In the same motor, if the intake is restricted, the torque will be diminished and the power will be reduced more rapidly as the speed increases, because the torque will reduce more rapidly than the speed increases. If it takes a given period of time for the mixture to enter a cylinder this fact will not be altered because the design of the motor is changed. An abstract fact is not changed merely because the design thwarts the plan, and the lesson to be drawn is obvious.

These are matters of more than a little importance when designs are being considered, and any design that prevents complete scavenging must offer other advantages to offset the disadvantages, or the results will be below a fitting standard. Torque is equal to the sum of the power strokes, minus the sum of the power-consuming increments. This same torque, which is but another name for torsional moments (torque, to twist), may be due to the power stroke in one or two more cylinders, and it may be due to:

(A) One power stroke for every four revolutions, as in 4-cycle motors.

(B) One power stroke for every two revolutions, as in 2-cycle motors.

(C) One power stroke per cylinder, per complete cycle, in any motor.

The sum of the torque increments might be the same, irrespective of the number of cylinders, and independent of the cyclic relation, for the reason that the torque is proportional to the weight of fuel burned to complete combustion, and it would seem as if practical limitations are such as to thwart all the designs beyond a certain point. Of course, there is a certain advantage to be expected from a

large number of light torque impulses, in comparison with a few of such impulses, in a given time. On the other hand, it is the general impression, gained in practice, that one good power stroke is of far more advantage than two "soft" power strokes. There is some truth in the idea.

The probabilities are that the practical way of putting it falls short of a true explanation, due to the complicated nature of the problem and the lack of understanding of both sides of the subject by any one of the practitioners. It cannot be claimed that the results will be different if the sum of torque increments of the power strokes are the same, considering two types of motors, but it may be true that one of the motors will deliver its impulses with greater regularity, due to better conditions of scavenging, from the point of view of regularity. That regularity is one of the grave necessities is true, and this phase of the problem is sometimes overlooked, nor can this much desired property be depended upon in a motor that does not enable the spent products of combustion to escape quite completely.

Valve-Timing Classes in the Fuel Problem—Independently of the mechanical means of accomplishing the desired results, the time allowed for the gases to enter and leave the cylinders should be the same in any given sized motor, considering a given result per power stroke and a conventional design of motor. The following general considerations will be in order:

(A) The inlet should be opened at the earliest possible instant, even before the exhaust is closed, in types of motors that will allow of the practice; which is true in 2-cycle work, as a rule, and in some 4-cycle motors, especially when the crankshaft speed is high, as it is when the stroke is short.

(B) The inlet should not, of necessity, close at the end of the suction stroke, nor is it good practice to set the closing of the inlet the same in all designs of motors.

(C) The exhaust should open before the end of the power stroke, as it does in 2-cycle motors, and in nearly all 4-cycle motors as well. Just when to open the exhaust is a matter that is not easy to settle upon, and that it will not be the same in all designs of motors is a matter to be taken for granted. In a long-stroke motor, for illustration, while it would do no harm to open the exhaust early, very early indeed, the advantage in doing so would be but slight. In short-stroke motors the advantages of an early opening are assured, and disadvantages are also present.

(D) The closing of the exhaust is of equal importance, and if the motor is of the high-speed variety it is probable that the valve can remain open until after the inlet is opened.

(E) Valve-timing, from what has been said, is a matter that must take into account the speed of the crankshaft and the stroke of the piston. It is a case of balancing the gains against losses.

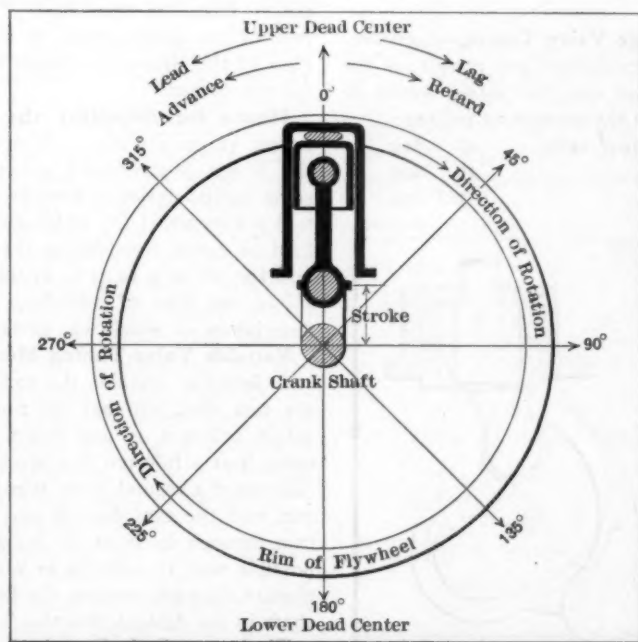


Fig. 40—Diagram depicting relations of advance, retard, lead and lag in the process of timing valves and the ignition.

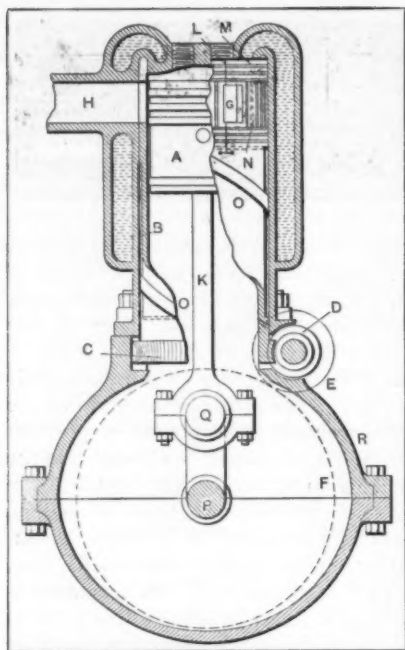


Fig. 41—Cross-section of a Ledru two-cycle motor, showing a rotary valve system.

tions (on the power stroke) at about 5 degrees. A fully advanced spark is one that is produced (on the compression stroke) at about 315 degrees, which angle represents 45 degrees, before upper dead center, and $360 - 45 = 315$ degrees. This angle is more than is customary in motors in general, yet even so it is not more than the mechanism should afford, in view of the conditions that are possible in modern high-speed work.

The upper dead center is marked as 0 degrees, so that all angles are computed from this point. In dealing with the early and late opening and closing of the valves (on the bottom dead center), all valves that close before 180 degrees close early, and all valves that close after 180 degrees close late. If the admission valve remains open for 15 degrees beyond the bottom dead center, for illustration, it will close late, and the angle of closing will be 195 degrees on the inspirating stroke. On the other hand, if the exhaust valve opens 45 degrees before the bottom dead center it is said to open early, and the angle of opening will be 135 degrees on the power stroke.

Example of Angles in an Average Valve Timing—Considering a motor at a speed of 1,400 revolutions per minute of the crankshaft as representing an average case, the valves would do satisfactory work were they timed in the manner as follows:

Lead given in opening the exhaust valve....	45 deg.
Lag in closing inlet valve.....	15 deg.
Lag in closing exhaust valve.....	7½ deg.

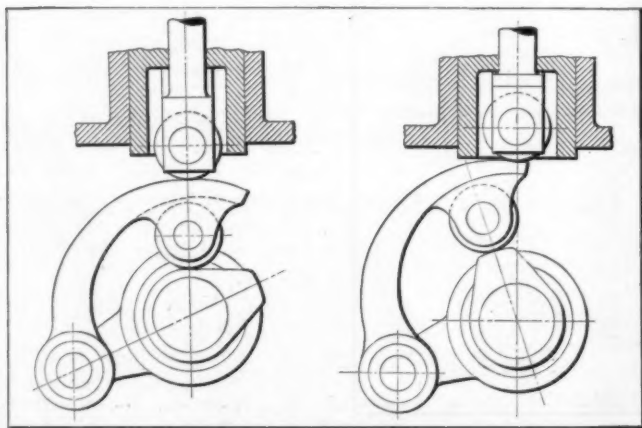


Fig. 42—Scheme for accelerating the process of adjusting the timing of valves by means of a cam-follower.

Fig. 40 will render clear the terms advance, retard, lag and lead. As the figure shows, when the spark, for illustration, is advanced, it is caused to propagate earlier in the revolution of the crank, so that to advance the spark it is necessary to cause the same earlier, and the word "advance" really means that the spark is advanced against the revolution of the crankshaft. Likewise, a retarded spark is one that is propagated late in the revolution of the crankshaft. A fully retarded spark is one that is produced under ordinary condi-

Lag in opening inlet valve.....	15 deg.
Exhaust valve opens on the power stroke....	135 deg.
Inlet valve closes on the compression stroke....	195 deg.
Exhaust valve closes on the suction stroke....	7½ deg.
Inlet valve opens on the suction stroke.....	15 deg.

Under certain conditions it would be possible to open the inlet valve early and close the exhaust valve late, but this is not a condition that is to be recommended as a general proposition, in the absence of definite information in relation to the motor and the service to be rendered by it.

In closing the inlet valve late on the bottom dead center it is the aim to take advantage of the inertia of the gas stream, and if the design is right there is no question as to the resulting gain. There is one other point to be considered—it is only possible to time the valves if the design is such that the inlet and exhaust valves are separated from each other, as they are in poppet-valve motors. Take the rotary valve, for illustration; it is not one that will lend facility to a plan of overlapping the opening of the inlet with the closing of the exhaust. Indeed, there must be a period of time when both valve ports will be closed, since there must be a separating wall between the inlet and the exhaust ports. Fig. 41 shows a motor in section, in which the timing of the valves is due to the rotation of a sleeve inside of the cylinder walls, within which

sleeve the piston reciprocates. In this motor, which is of the "Ledru" type, the action is on a two-cycle basis, and while it is not of a design that will lend itself to timing variations, it is the aim to compensate for this by two-cycling, thus doubling the number of power strokes. Referring to the figure, it is to note that the piston A works inside of the sleeve B, which sleeve is rotated by the worm-gear C, actuated by the worm D, driven, in turn, by the gear E, taking its power from the crankshaft P through the large gear F. The rest of the performance is not of interest from the point of view of this discussion, hence this type of motor will be dropped for the present.

Means for Adjusting the Timing of Valves—Even when poppet valves are used it is not possible to alter the timing after the design is completed, excepting within narrow limits, unless some special device is introduced for the purpose, and even then it is a question if the added complication is not considerable of a load to carry, considering that the design might be made once and for all on a basis to exclude all such complications. Fig. 42 shows one way of affording a means of ready adjustment, a description of which was given as follows:

Variable Valve-Timing Mechanism—"It will be seen that the cam follower remains the same as in average practice, as does the cam also, but that the action between the cam and the so-called follower is not direct. Surrounding the camshaft, and using it as a fulcrum, is a lever. To the outer end of this lever is fulcrumed a second lever, which carries a roller for making contact with the cam directly and communicating the motion of the cam through itself to the reciprocating follower. In action it is possible with this device to vary the times of valve opening and closure through rotating the first of these levers about the camshaft in the desired direction."

Timing as It Is Practised in Maxwell Cars—What actually transpires in practice is of the greatest utility, particularly when the results are commendable. The table that follows shows the

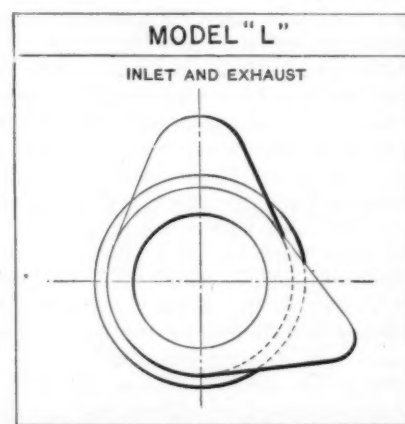


Fig. 43—Maxwell camshaft for inlet and exhaust valves combined, showing contour.

practice in connection with Maxwell cars of the several types, and the cams are shown in Figs. 43, 44, 45, 46 and 47. The figures are given full size, so that it is possible to note the contour, and it is one of the points of merit in these cars that the action is noiseless and the cams are efficient and durable. The table is sufficiently clear to require no further explanation, and, while the angles of opening and closing of the valves may not fully accord with the practice in some other cases, it seems to be right for Maxwell motors at any rate.

In Further Relation to Opening Inlet Valves—It rarely ever happens that the inlet valves are opened early, nor can it be shown by any line of reasoning that an advantage will follow if inlet valves are opened early. A late opening assures that there will be a depression in the chamber when the inlet valve opens. That there should be a depression in the chamber at the time of opening of the inlet valve is one of the points that can be made, and it is also true that a considerable lag, in degrees, on the periphery of the flywheel means but a small depression in the chamber. It will come as no great surprise, then, to note that in some motors the inlet opens very late indeed. As an illustration of a case with a very late opening, attention is called to the Unic, 20 H.P., in which the inlet was found to be 34 degrees late. In the Maxwell cars, as the table shows, all the inlet valves open at 15 degrees late, which seems to be a good average figure in general practice, considering motors of the speed of the Maxwell.

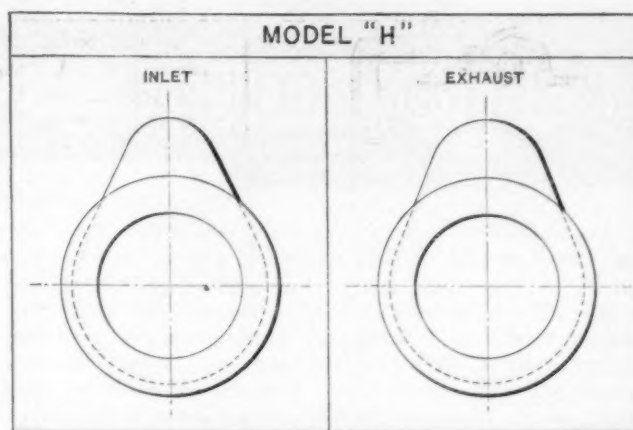


Fig. 44—Maxwell cams, showing a round-top contour in the inlet side, thus assuring an adequate opening.

while the valves may open on time and, in so far as they are concerned, do all that can be fairly expected; even so, if the exhaust is retarded (beyond the valves) the results will be inferior.

Fig. 48 depicts an effort on the part of the Pierce designers to afford an easy exhaust; indeed, they go so far as to attempt to generate a vacuum in the exhaust manifold, with the idea

TABLE SHOWING TIMING ANGLES FOR MAXWELL MOTORS AND OTHER DATA OF INTEREST

MODEL	TIMING OF VALVE IN DEGREES AND EQUIVALENTS OF INCHES ON FLY WHEEL								Diam. of Fly Wheel	Stroke of Cylinder	Diam. of Cylinder	No. and Type of Cylinders	H.P. of One Cylinder	Normal Speed Rev. per Min.	Max. Speed Rev. per Min.
	INLET				EXHAUST										
	Opens		Closes		Opens		Closes								
	Degrees	Equiv.	Degrees	Equiv.	Degrees	Equiv.	Degrees	Equiv.							
L.....	15° late	2½"	40° late	6¼"	40° early	6½"	10° late	1 9-16	18"	4"	4.5"	2 horiz.	6	800	1200
H.....	15° late	2½"	40° late	7"	40° early	7"	10° late	1¼"	20"	5"	5"	2 horiz.	8	750	1000
Q.....	15° late	2.289"	40° late	6.104"	40° early	6.104"	10° late	1.526"	17½"	4"	3.75"	4 vert.	4.5	900	1400
K.....	15° late	2.487"	40° late	6.633"	40° early	6.633"	10° late	1.691"	19"	4¼"	4.25"	4 vert.	6.5	800	1200
M.....	15° late	2½"	40° late	7"	40° early	7"	10° late	1¼"	20"	5"	5"	4 vert.	10	800	1200

NOTE—In timing valves, piston should be on upper dead center.

In any event, there is one point that is assured on the face of it: there is nothing to be gained in opening the inlet valve sooner than gas will flow in, and that is when a depression is created. On the other hand, there is a decided advantage in keeping the exhaust valve open as long as possible, and this is only practicable when the inlet valve is opened late, unless it is desired to have both valves open at the same time. That they can be open at the same time is true in high-speed motors, but it is a question if flexibility will still be present. Certainly there is some chance of popping in the intake if the two valves are so open, provided the speed of the gas is slowed down sufficiently, which will be true when the motor speed is low enough. Flexibility, then, is probably sacrificed in the motors that are so timed that the inlet valve opens before the exhaust valve closes. In the Maxwell cars the exhaust valves close 5 degrees before the inlet valves open, and this is an ample margin for safety. It is even a question if the Maxwell has not erred on the safe side, which, by the way, is a good fault in cars to be placed in the hands of users.

Certainty of action is one of the great points in favor of a fine performance in automobile motors in particular, on account of the entire absence of mechanical skill on the part of many autoists, and this certainty is not to be regarded as present unless the motors will perform when they are heated up as well as when they start out for a day's run. On this account it is necessary to pay attention to the exhaust to a marked degree, for

of pulling the exhaust gases away from the valves, and in this way an attempt is made to increase the power of the motor. The idea is very simple, consisting only of so shaping the exhaust manifold that a nozzle effect will be engendered, and the area of the manifold is so calculated that the resistance against the efflux of gas is but slight, and well regulated besides. Tests

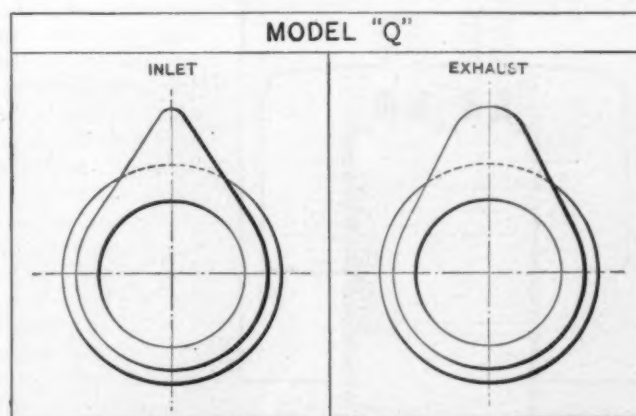


Fig. 45—Maxwell, with inlet cam, designed for the characteristics of Model Q motor

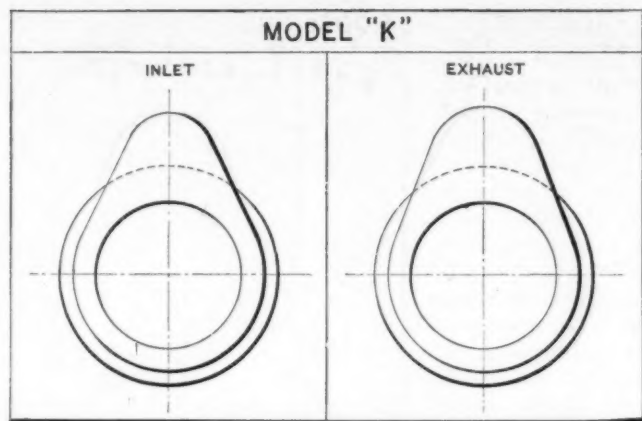


Fig. 46—Rounded cams on Model K Maxwell motor offering an easy action and aborting noise.

of the Pierce exhaust manifold, as reported by the engineer in charge, were such as to encourage attempts of this character, and certainly it is at small cost, excepting as to skill, that matters of this nature can be incorporated into motors.

In some types of motors, notably in air-cooled work, the valves in the head are small, due to the manner in which they are placed, as depicted in Fig. 49, excepting that the illustration includes a way of keeping the valve springs cool, in that the springs are outside of the air jacket. That the valve springs have to be kept cool is a matter that proves out in the examples that do not include a means of cooling them. If the springs

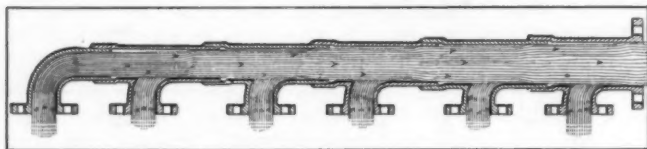


Fig. 48—Pierce exhaust manifold, designed to afford a vacuum, and an increase in power.

lay up against a heated wall, particularly if the wall is that which obtains in air-cooled work, it takes but a little while for the springs to become lazy. When the springs fail to work in a manner to assure quick closing, noise is made when the rollers fail to follow the contour of the cams, and what is more to the point, the timing is reduced to indifference. The design as depicted in Fig. 49 is defective, in that the valves are not in separate housings, although this is a matter that was mentioned earlier in this discussion.

As an example of very exact work, in which the question of the temperature of the springs is adequately cared for, Fig. 50 is offered, which represents a Pierce motor cross-section, and, among other details, a commodious roller hugs the cam, so that the life of the parts should be long, which is besides the point to be made here, i.e., once the motor is timed, if the "tuning up" operation is properly done, it will stay so for a long time. This has not always been so in motors in general, and it is a matter of very serious purport, for when a car is handed to a motorist

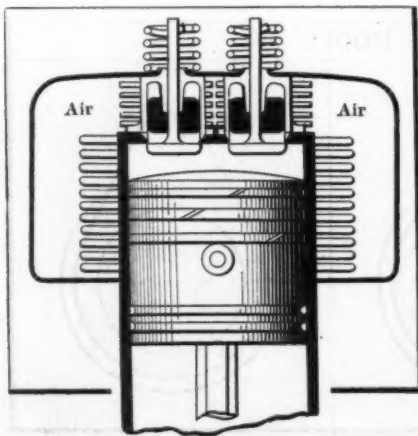


Fig. 49—Air-cooled motor with valves in the head and means for keeping the springs from over-heating.

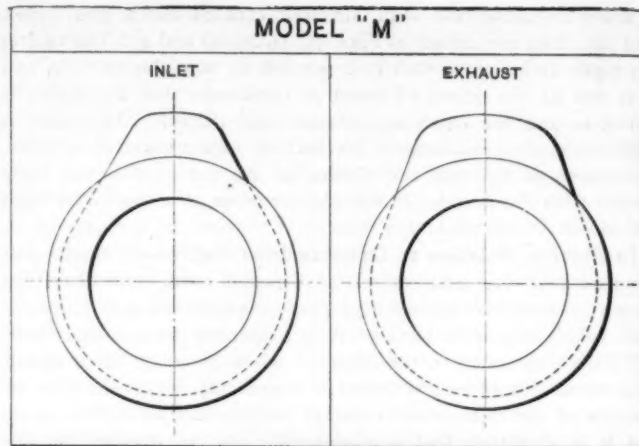


Fig. 47—Model M Maxwell showing cams that assure a long time opening and easy action.

it frequently happens that it is to one that has never before "tried his luck."

If the timing will not stay adjusted, and it will not unless the parts are properly made, the poor motorist will soon have to place himself and his car at the tender mercy of a garage keeper, who, in all truth, can do no more to remedy this defect than the owner of the car; the garage man can bill his time, nevertheless. Fig. 50 is also noteworthy in that it shows exact means for adjusting the valve-lift; moreover, the work can be done with ease by a man of no great skill, for the very simple reason that an adjustment is provided. In this case the adjustment consists of a special shaped cap-screw, threaded to screw into the lift, and a lock-nut is available to secure the cap-screw once the adjustment is properly made. In the head of the cap-screw, just where the stem of the valve contacts, a cushion is provided, the function of which is to prevent noise, which is so noticeable in the class of motors that make no provision to dampen the tapping sound. In this case the cushion is imbedded into the head in such a way that it cannot flatten, nor is the material prone to crumble. This is a point well worth taking into account.

The lift is of good proportions, with ample bearing surfaces, and the guide is of suitable bearing bronze, so that the life of the parts, which is really measured by the noise that will ultimately have to be taken into account, is nil, in this case, due to the manner of design, use of suitable materials and provision against eccentric pressures and harmonious relations of the parts.

(To be continued.)

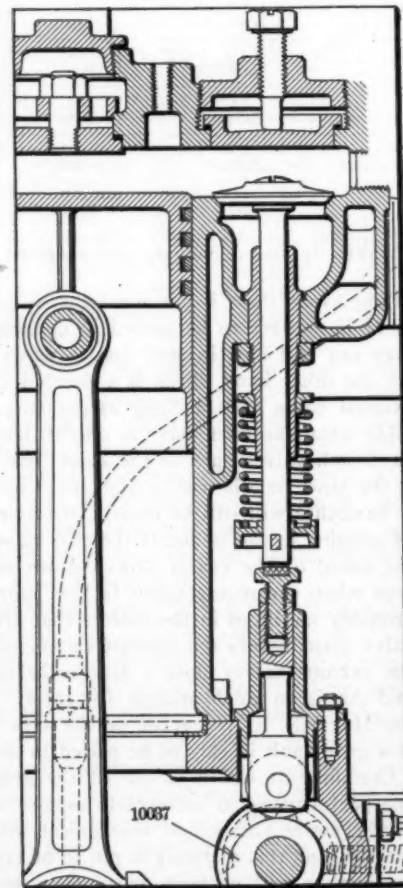


Fig. 50—Pierce valve-motion, showing manner of adjusting the timing and noise-preventing cushion.

ELECTRIC LIGHTING for AUTOMOBILES

By MORRIS A. HALL.

It will be welcome news to many that much good work is being done along the line of substituting electricity for the present sources of light. This will be particularly attractive for use with headlights or searchlights where superior strength is more necessary, although it is possible that the present side and tail lamps may not undergo any alteration in this respect even with available electricity. This offers many advantages, such as cleanliness, convenience, superior light with its accompaniment, greater carrying capacity—that is, greater length of road illuminated. Providing that a proper source of current is provided there are no real disadvantages worthy of the name. The furnishing of this current up to date has been the insuper-



Typical Storage Lighting Battery

able obstacle to the use of this very desirable form of lighting and even now it is not an assured fact that the previously existing difficulties have been wholly overcome.

The Prime Sources of Current—The current supply is susceptible to treatment along two lines—that is, there are two possible

sources of current supply. These are the dynamo and the storage battery. The former is a rotary current generator and actually produces current, while the latter gives this out only by chemical action, in the course of which material is altered in its form after the complete alteration of which a reverse or building-up action is necessary before more current is produced. That is, the storage cell for electric lighting purposes is only a different form of the storage battery used for ignition and is subject to the same failing, the necessity for recharging.

For car lighting a high discharge rate is a necessity, this being much higher than the ordinary discharge rate necessary for ignition. The question of ultimate use must be considered in the construction of the battery because the rate of current drain influences the internal construction. That is, if the cell was constructed for a low discharge rate and then is used for lighting or some other purpose requiring much current the greater rapidity of action is not only liable, but certain, to warp the grids or plates composing the battery. This results in both mechanical and electrical losses which can only be stopped by replacing the warped plate with a new one.

With a battery specially constructed for large flow the size, shape and arrangement is such that it does not effect any harm. This sums up in the statement that the battery if of the storage or accumulator type must be especially constructed for electric lighting purposes. Such batteries are now upon the market and may be had at any supply store. As the illustration shows, the external appearance is no different than any other storage battery, all of the changes being internal and hence not visible.

Dynamo Also Must Be Specially Built—Like the storage cell, the ordinary dynamo or magneto is not available without a number of internal changes, which amount to practically the rebuilding of the whole machine. First, the biggest problem in this connection is not the construction nor the winding of the machine, but the lack of a satisfactory governor to regulate the speed. To mention briefly the requirements is to outline the difficulty without further mention. These are: The speed of the engine or any other rotating shaft in the car is constantly varying; the dynamo must be driven from one of these change-

able speed shafts and positively, yet its own speed must be very constant; in fact, in the best electric light work the maximum permissible variation is but 2 per cent.

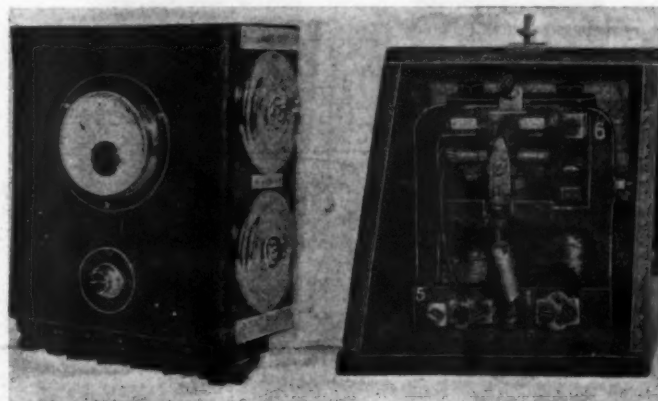
From this one may get an excellent idea of the difficulty, yet there have been many serious attempts at it and one of the latest looks very good. One way ordinarily used is the centrifugal governor, which at best is a rough means, while the problem would seem to demand a very delicate treatment. In an English machine, the Leitner, electrical methods have been substituted for mechanical means with this object in view, namely, the attainment of a continuous output at a constant pressure.

The dynamo shown in one of the small cuts is of the bi-polar shunt-wound enclosed type. The enclosing case shuts out the dust, keeps in the lubricating oil and is the acme of simplicity. The armature is mounted upon ball bearings to reduce the friction of rotation to as near zero as possible. In addition to the usual brushes another auxiliary pair are fitted which fulfill the function of regulating the pressure of the outgoing current regardless of the speed at which the generator is driven. They are set slightly in advance of the neutral axis and are connected in series between the ordinary shunt coils of the field magnets.

Auxiliary Brushes Add to the Current at Medium Speeds—At slow speeds and while the dynamo is being speeded up these brushes are picking up a small amount of current, which goes to assist the normal shunt current in the magnetization of the poles. As the speed continues to increase and approach a predetermined maximum, the magnetic field becomes more and more distorted until at the maximum point the original lead of auxiliary brushes is neutralized and the neutral zone has advanced and overtaken them. At this point the auxiliary brushes have no effect, and when the speed is further increased the distortion increases with it and current drawn from the armature by these brushes acts as a back EMF or in opposition to the normal shunt current. Throughout this whole range of change of speed only a change of potential takes place in the exciting current.

By so selecting the angle of advance of the auxiliary brushes any desired speed range may be obtained and the output of the machine controlled within these limits by the progressive assistance and neutralization of the excitation. So well have these angles been worked out that in actual tests it has been impossible to detect any variation in the main current using a voltmeter. Two pictures of the dynamo complete and of the rotating armature, with the field magnets in place just as the armature was withdrawn from them, are shown.

The action of the machine, which is the basis of a whole new lighting system, is to change the electrical conditions and thus,



Switchboard and Automatic Cut-Out in Two Views



Armature and Magnet Case of the Leltner Dynamo

rather than by varying the speed alone, govern the electrical output within well-defined limits.

Automatic Switch Plays an Important Part—This newer system also includes an automatic cut-out switch, the function of which is to act as a non-return valve to the battery. The latter are fitted as an intermediary between the dynamo and the lights, the former being used to charge the battery, which in turn is used as the immediate source of current. When the generator is in use charging the cells the current flows through this switch in a normal manner, but as soon as there is a flow in the opposite direction—that is, from the battery to the generator, the switch is automatically pulled out owing to the reversal of the two poles of one of the magnets. Similarly the switch is automatically pulled in when the current from the generator becomes large enough to charge the battery.

In either case the action of the switch is electrically positive and it is magnetically held in the position into which the electric action forces it. This continues until the conditions again change and is not affected by vibrations, consequently its efficiency is not affected.

When the batteries are not furnishing current for lighting a two-way switch is made to insert a resistance in the field coils so that the output is reduced to a very small quantity.

Ignition Also Possible with This System—If desired, a coil may be fitted, and with the batteries as a source of current, the lighting system may easily be used for ignition of the engine. If this method of igniting the motor is adopted, it is advisable to fit another set of batteries for ignition purposes, and kept the set of lighting batteries intact for that purpose alone. This is advisable because of the different current drain on the batteries in the two cases necessitating a different form.

One of the most convincing proofs of a system like this, however well it may seem in theory, is an actual installation, and the subsequent results derived therefrom. As stated before, this is an English outfit, and the installations which are available are also English. The London General Omnibus Company has conducted a long series of experiments with it, and finding no

faults as a result of these tests, has approved it for public use in passenger-carrying vehicles. Another London bus company has gone even farther than this in its appreciation of the real merit in the system. The Metropolitan Steam Omnibus Company tried it on a few cars and after these had traveled a distance in excess of half a million miles without untoward happenings and with no undesirable developments, all of the other cars belonging to this company were similarly equipped.

Considering the supply of current from a magneto on an automobile the point of difference between lighting and igniting conditions are three in number—variable speed, enormous voltage necessary to jump the air-gap and timing arrangements for producing the jump at the desired point in the engine cycle.

Granting the elimination of the first, the other two may readily be removed so that all that is necessary for the use of an ignition magneto for lighting purposes really is constant speed. In a motor boat, for instance, this condition obtains and frequently owners of motor boats cut in back of their coil (which produces the enormous voltage) and timer (which gives the spark at the right time) for current to operate a small lamp. Thus, the ordinary magneto might be depended upon to deliver 50 watts. Now small electric light bulbs of, say, 4 candlepower, would require about 4 1-2 watts per candlepower or 18 total. Then two of these could be used and still leave a large margin of current for ignition purposes. Thus if a system were used

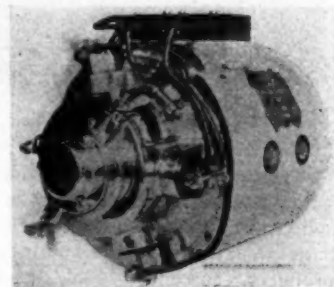
consisting of a storage battery and dynamo, with the latter furnishing the ignition current direct and charging the storage battery with the surplus, this system would readily adapt itself to lighting work in addition. Suppose the dynamo furnished 5 amperes and the ignition consumed but 2 amperes of this. The extra 3 amperes of current could be used to charge the storage cell, which in turn could be utilized for ignition. With the use of 6-volt, 6-candlepower lamps, the current accumulated in ten hours would operate six lamps for five hours, or if more light is required, it would operate twelve lamps for two and a half hours.

Economical Lamp Bulbs Are a Necessity—An inspection of the above shows that the current is very carefully distributed and conserved, so as to minimize the losses. With this in view it is apparent that any device that will economize on current still further is a desideratum. Many of these have existed in theory only, but to-day there is a prominent current saver which is rapidly becoming known and popular.

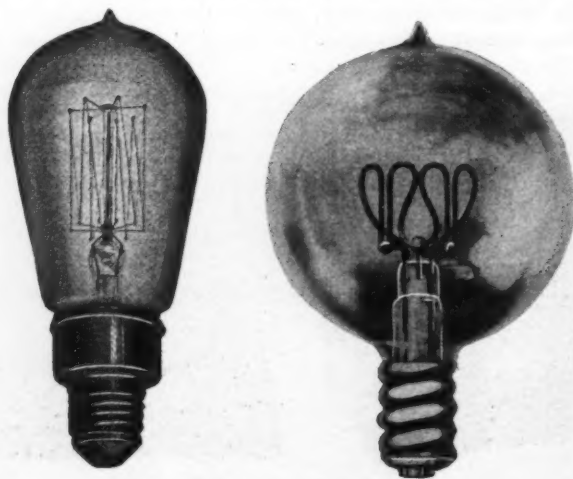
This includes the newer filament lamps all with filaments other than carbon. It has been ascertained by careful and painstaking experiments that these different filaments actually save current, furnishing the same amount of light with a smaller expenditure of electrical energy. In an automobile lighting system this is one of the biggest points to consider, therefore they are very well fitted to be used for this purpose, particularly now that they are constructed so as to be strong and rugged.

Particular reference is had to the tungsten lamps, which not only will give an equal amount of light with 60 per cent of the current expended in the case of carbon lamps, but in addition maintain this factor of economy for a longer time. The latter feature is as valuable as is the former, for a lamp which saved an equal amount of current, but had a very short life, would be a poor saving. In this contingency the extra cost of lamps and trouble of renewing would overbalance the saving in current.

As now made these tungsten lamps take on various forms, the filaments in particular assuming peculiar and fantastic shapes. Two of these are shown to illustrate this point, one having a number of coils or loops, while the other is made with a series of straight webs connecting an upper and lower ring.



Dynamo Shows Four Brushes



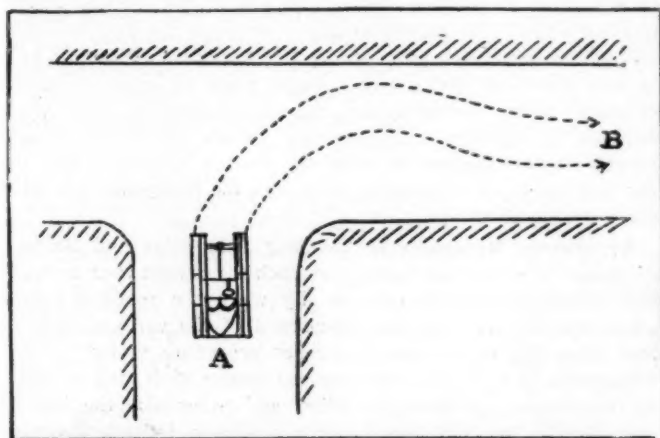
Two Ordinary Forms of Tungsten Light Bulbs

Aids in the Driving of a Car -

Part 3.

By D. R. Hobart

BREAKAGES of wheels and springs are in a large measure due to the fact that comparatively few autoists know how to properly make turns. In many instances breakages are directly traceable to cutting corners too sharply, either through a desire to save time or because of miscalculation on the part of the driver. Should a collision be the final result of the careless negotiation of a corner or turn, it is often the direct result of



Proper Method of Making a Turn to the Right

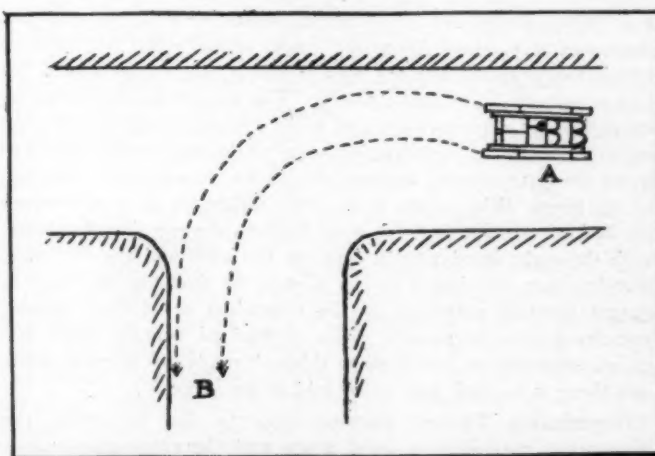
ignorance of the proper amount of space that should be allowed for maneuvering the car, or what is even worse, utter indifference to anything that may happen to the car or to other users of the road. The negotiation of turns is a simple matter as far as the steering of the car is concerned, but experience is essential to the proper procedure under unusual circumstances, as when the road is partially obstructed by excavations, vehicles, etc. No rules can be laid down to cover all cases, but there are a number of things which should be borne in mind at all times with regard to turns.

Negotiating Turns—The procedure on approaching a turn is exactly similar to that on approaching a road crossing. The car should keep to the center of the road and its speed should be reduced somewhat until the road is seen to be clear when the turn can be made. In taking a right hand turn, the autoist should keep well away from the corner, describing as large an arc as possible and gradually gaining the center of the other road. Such maneuver is shown in the sketch, where the car A follows the dotted course until the point B is reached. By so doing a collision with another car coming in the opposite direction will be avoided as either car can swing clear. In taking a turn to the left a similar maneuver should be made, but in this case the car should keep close to the proper side, as in the sketch of the left turn. The size of the arc described in making the turn will, of course, depend on the width of the road and the length of the car, small runabouts being able to turn in an arc of 25 feet or less, while large touring cars should describe arcs of 32 feet and over on an ordinary road.

Corner Shaving to Be Avoided—Except when absolutely necessary to avoid a collision corners should never be cut closely or "shaved" as it is often called. By shaving a corner the autoist runs chances of colliding with other vehicles, and engenders a dislike in all other users of the road not only for himself

but for automobiles in general. There are numbers of drivers that habitually shave corners, who start to make the turn before reaching the proper point and cut diagonally across the road, obstructing traffic coming in the opposite direction, and hugging the left hand corner of the intersecting road. Their desire is evidently to travel from one point to another in the shortest possible space of time, and to save distance cut the corners without regard to the rights or safety of others. The majority of automobile drivers of this class luckily confine their operations to city streets, although they are found in some numbers on country roads. On the other hand a large majority of horse drivers are corner shavers, women being particularly given to the practice. Because of the presence of this and the reckless classes of drivers, special caution has to be exercised at all times by those in charge of vehicles of every kind.

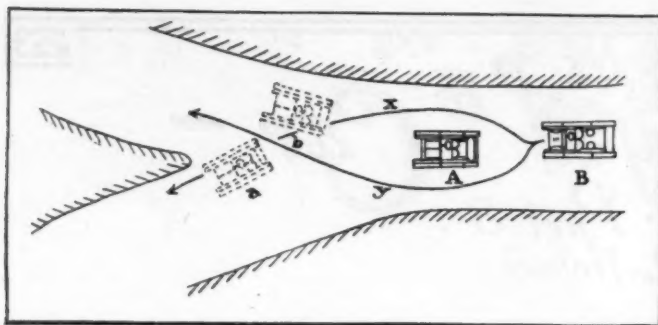
On Approaching a Road Fork—On approaching a point where the road forks or branches off, the autoist should hold well over to the proper side of the road in order to avoid cars coming along the branches. Should he be traveling along one of the branches toward the fork, however, he should keep in the center, as when approaching an ordinary turn. On overtaking another car, it would be better to allow the latter to proceed on its course without attempting to pass, unless the driver signals the direction he is about to take. The reason for this can be readily seen by referring to the sketch where car B is about to overtake car A. If B attempts to pass A by taking the path y, a collision will occur if car A turns down the left fork at a. On the other hand, if the path x on the wrong side is taken, a collision will occur at b if the leading car takes the right fork. Hence the driver of B should allow A to take its course before proceeding on his own. If the driver of car A should signal the fork he is going to take, B can pass on the proper side if the same fork is to be taken by both, and on the wrong side if



Course to Be Followed on Turning to Left

A is to take the left fork and B the right. If A is to take the right and B the left fork, B will pass in the ordinary manner.

Car Lines an Element of Danger to Autoists—Whether running in city or country, the autoist should be extremely careful regarding car—or as they are often called trolley—lines. Undoubtedly no other form of transportation on public roads con-



Passing a Car at a Fork of the Road

stitutes such a great source of danger to all other forms, particularly as localities in which the lines are located are those where traffic is above the average in volume. It is rare indeed that a trolley line is built on its own right of way; it usually occupies a good half of the common road and the autoist will frequently encounter the rails emerging from what seems to be a dense undergrowth or appearing suddenly from an adjoining road, its presence being only indicated beforehand by the overhead wire and its means of suspension. As a rule the line is laid on one side of the road, but there appears to be no generally recognized plan as regards location, and the autoist must keep a sharp lookout not only for surprising changes in location of the line but also for the cars themselves.

Track Should Be Carefully Watched—Regarding the track itself strict watch should be kept for rails which are elevated above the level of the road, for switch tongues and for differences in level between the bed of the line or track and the surface of the road. Any of the above may interfere with the steering of the automobile if the wheels come in contact with them, and if the road is at all greasy, side slips are likely to occur. The rails are a source of trouble when slippery and care should be taken that the tires do not get into the rail channels, as they will be badly wrenched or even torn off when a change of direction is desired. One of the commonest mistakes made is in running the car with all four tires in the channels, which undoubtedly makes smooth riding but which also renders it difficult for the autoist to steer out of them again when he wishes to do so by any movement of the steering gear. When the rails are dry, only a short time will elapse before the tire will ride over the rail-head and get clear, but with wet rails sometimes hundreds of feet are traversed before the tires are clear. Such a situation would not be rendered pleasanter if a car was seen approaching at speed along the track. Even when one tire enters a rail channel it is not easy to get it clear, especially if the tire is smooth or of small profile. The autoist should therefore keep clear of slippery rails and when crossing them do so at as great an angle as possible, dodging projecting track work and being ready to correct any action due to the catching or sliding of the tires. When there is no great difference in level between the bed of the line and the road surface the car may be driven with the right hand wheels between the rails and the left hand wheels clear, as shown in the sketch, so that the car may be swung clear if a trolley car be overtaken or if slow moving vehicles are to be passed. This method of running finds frequent employment on "trolley ridden" roads of narrow width and there is a good deal to be said in its favor.

Negotiating Trolley Cars—Owing to the fact that the trolley car runs over a fixed route and therefore cannot turn aside to avert a collision or follow a course best suited to the circumstances, the autoist must treat it as a distinctive sort of vehicle which has to be negotiated in a different manner from others. First he should remember that if there is sufficient space to pass the car there will continue to be sufficient space, but if there is not then something will get smashed. The redeeming feature lies in the fact that the rails and switches are distinct guides as to what course a trolley car will take. With other

vehicles, the intentions of the driver can be ascertained by observing the direction he is taking, the speed at which he is traveling and his position with regard to others on the road, but with the trolley car the course being taken at the moment indicates nothing and the track ahead is that which should be watched. Particular care should be taken where the tracks change from one side of the road to the other, and cars usually take such portions of the track at the same speed as when on a straightaway, regardless of other vehicles on the road. As a rule trolley cars should be overtaken and passed, as explained in Part 2, where the track ahead is straight or where it is only on one side of the road. The autoist should never attempt to pass a trolley car when a curve, turnout or crossing is in sight, but follow it at the same speed that it is traveling until the way is clear on either side.* Passing should be done on the proper side except where the car is on the wrong side of the road, when the autoist should pass carefully on the wrong side, keeping well over to the right hand side of the road in so doing.

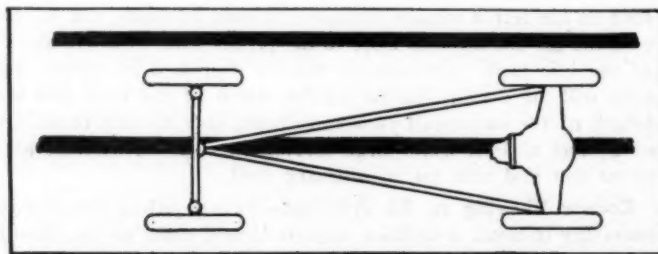
Crossing Railroad Tracks—All railroad tracks should be treated as if trains were likely to be due at the crossing at any moment and the car should be driven across at the greatest angle and at the best speed possible. A sharp lookout should be kept in both directions and the car slowed down on approaching the crossing, taking absolutely no chances whatsoever. In case a collision is imminent, the steering wheels should be turned sharply in the direction in which the train is moving so that the car will be struck a glancing blow and the occupants will have some chance of escape.

Experience Necessary in Evading Side Slips and Skids—Nothing but actual experience can teach the autoist how to evade the ever-present bogey of side slip when the roads are in a slippery state. He may be forewarned of the various kinds of side slips and skids and the proper procedure under the circumstances, but he must actually experience each kind in order to distinguish one from the other and to acquire the instinct necessary to counterbalance every tendency in that direction immediately the first symptoms are perceptible. There are certain kinds of surface on which the tires cannot obtain a firm grip, places in which sideways strains are brought to bear on the car, and acts on the part of the driver which either reduce or increase the adherence between the tires and the road. These three things are unconsciously or consciously learned by every autoist of any road experience and those not familiar with them will do well to find out all that is possible concerning these points before venturing on slippery roads.

Skidding to Be Distinguished from Side Slip—Although both the terms skidding and side slipping are used freely as regards automobiling, their meanings are often confused and the former is used to designate both. Skidding implies a continued forward movement of the car or vehicle after the wheels have been retarded or locked by the brakes; while side slipping relates only to a lateral motion of the car due to the wheels sliding bodily sideways. Practically, the distinction between the two is not so sharply drawn, as skidding is of comparatively rare occurrence and usually develops into side slip automatically.

To the inexperienced autoist, side slips which should be skids in his opinion, are apt to prove very disconcerting.

(To be concluded.)



When Running Lengthwise of Street Car Tracks

Letters Interesting and Instructive

THE SUBJECT OF WEIGHTS

Editor THE AUTOMOBILE:

[1,897]—Being a subscriber to "The Automobile," I would like to have you inform me of the weight of front and rear wheels, including tires on machines carrying from four to seven passengers. That is, I wish to obtain the weight on the ordinary car as well as on the heavy touring car. Is there a list of such weights and cars?

Boston, Mass.

HENRY HASTINGS.

It is hard to decide whether you mean weight of wheels or weight on wheels. In case it is the latter, you will find in the May 20 issue of THE AUTOMOBILE, page 810, the tabular weights of the cars in the one-gallon test. These represent accurately the weights of both cars and passengers in ordinary touring conditions, and you will find therein cars of all classes from the fast six-cylinder runabout with three passengers to the larger four and six-cylinder touring cars with a full complement of five or seven people.

To get more exactly the weight distribution on the front and rear wheels, it will be necessary to give you the information from cars with which we are familiar as there is no available data on this subject. Thus the Apperson car, with a four-passenger body, weighs exactly 3,100 pounds, of which 1,493 are carried on the front wheels, and 1,607 on the rear wheels, making the car 114 pounds out of an exact balance. The Simplex 30 is only 56 pounds out of balance, as the total weight of 2,914 pounds, with a tonneau, is divided 1,429 to the front wheels and 1,485 to the rear wheels. These are the only cars of which this data is immediately available.

In case you mean weight of the wheels themselves, this also is a subject on which exact data is not available, but for very general purposes you would be safe in figuring it at from 30 to 75 pounds per wheel, including tire. The former figure will be safe as the lower limit for small light wheels with corresponding tires, such as ten-spoke wheels with 28 by 3 tires. The other figures will answer for the heaviest practice, such as fourteen-spoke wheels with 36 by 5½ tires.

TROUBLE WITH AIR INTAKE

Editor THE AUTOMOBILE:

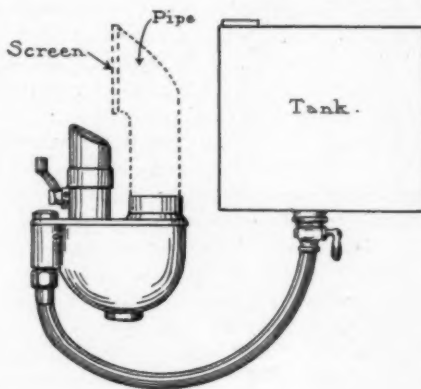
[1,898]—I have a carburetor on my runabout and the air intake is near the gasoline tank. On going up grades, the fuel runs out of the vent in the tank cap, down into the carburetor air intake. Could I put a strainer on it to take air from the side away from the tank, or would a flat strainer on top of the carburetor be better? Please advise me also where I can procure a brass strainer of the kind needed for this purpose.

Rosendale, N. Y.

C. VEEDER.

The addition of fuel as you describe to the air at the air inlet will seriously disturb the running of the engine and probably give so rich a mixture as to choke the engine. It is advisable to remedy this at

once, and the best way to do this is to prolong the present air inlet upwards and outwards away from the gasoline tank which causes the trouble. To do this, have a sort of stove pipe made; it may be of galvanized iron, tin or any similar metal. Have this made long enough to take the top very near to the top of the offending tank, then a big, easy bend away from the latter. The opening or mouth of the pipe should be so formed as to take a screen, which is necessary to keep out the dust, and should preferably be made removable, so that when the screen clogs with dust it can be taken off, cleaned, and replaced. For this purpose use a very fine



Sketch of New Air Intake

brass gauze, which you can obtain at any hardware store, and for a small cost.

In the appended sketch is shown a rough diagram as your case is understood and in dotted lines the suggested improvement.

SHORT VALVE STEMS

Editor THE AUTOMOBILE:

[1,899]—I have a Mercedes 18-22 horsepower car. The last time I had the engine overhauled some of the valves were ground in too much, which lets the exhaust valve stems come very close to the lifts when they are down. And the next time they are ground the valves will probably not seat. Is it the proper practice to file a little off the end of the valve stems? How will this affect the turning of the valves?

Rowlandville, Md. EDWARD CONNER.

The answer to your question is no, it is not proper practice to file off the ends of the valve stems. You are worrying over trouble which has not made its appearance yet, but when the next regrinding is done you will know for sure. If the case you describe comes true, take the valves to a shop noted for good work, have the temper drawn from the valve stem ends (they are usually hardened), and have about twice as much as is necessary turned off from the ends in a lathe. The extra amount is to allow for another grinding of the valves, or perhaps it would be better to have about an eighth of an inch

taken off, which will provide for a large number of regrindings.

Next, the end of the stem must be carefully hardened again, and this is no ordinary job, for when it is finished the end must be straight and square with the axis of the whole valve. If this is not true, the action of the push rod will tend to throw the valve off to one side (the side which is high) and make the work of grinding for nothing.

Providing that the clearance between the push rod and the end of the valve is kept the same, by means of the adjustment provided, it is hard to see how any alteration in the length will alter the timing of the valves. Before making the changes suggested it would be well to measure the clearance, carefully remembering that it usually is but a few thousandths of an inch.

It would also be well to measure the amount of possible adjustment provided, and shorten your valve by an amount less than this, for if you shortened more than the adjustment the clearance would be increased, and the whole timing thrown out.

ABILITY OF MAGNETO SPARK

Editor THE AUTOMOBILE:

[1,900]—Will you kindly advise me on the following points: I have a four-year-old car, which is now in need of an overhauling. The ignition is by means of two sets of dry cells, four each, working through a coil. The engine is of very high compression. Last year the dry cells required frequent renewals, and now I am considering the installation of a magneto. The question with me is, would it be possible to start on the magneto alone with such high compression? Also, I have just put on a new set of piston rings; can this be the cause of the engine overheating badly, whereas formerly it never did. The water circulation seems to be good, also the cylinder oil feed, yet it heats, therefore it has neither speed nor power.

F. K. G.

Louisville, Ky.

The number of cells supplied with the car were evidently too few or they would not have required as you say "frequent renewals." If you care to try dry cells again, use either eight or twelve, connected up in series-multiple, as described in the March 4 issue of THE AUTOMOBILE, and enlarged upon in much detail in the issue of May 20, pages 817 and 818.

In case you do not want to try them again, the installation of a magneto will be a perfectly safe thing to do even in view of the high compression of which you speak, but of which you do not give the exact figure. The magneto, as now marketed, will give a spark strong enough to ignite any charge, no matter how much the compression is, at the ordinary speed of cranking. If this were not so, the racing machines, some of them with a compression of 110 pounds, which is undoubtedly much more than you have, would not be equipped with single ignition, and with a magneto as the source of power.

High compression has also something to do with the overheating of your engine, which is doubtless due to the new rings not being fitted to the cylinder. Until this condition obtains, it will continue to heat. You can, however, help matters along by flooding the cylinders with oil until the rings are well ground into place. Probably a good rule to follow would be to double your usual cylinder lubrication, that is, the number of drops per minute. If the engine was of lower compression, it would not heat so readily even with new rings, which were of a larger diameter than the old ones. In the meantime, that is, while the rings, copiously oiled, are running themselves in, let the engine run as hot as it will, up to the point of actually seizing.

TIMING AN OLD ENGINE

Editor THE AUTOMOBILE:

[1,901]—Will you please tell me how to time an old engine, that is, one which does not have the different points marked upon the flywheel for a guide? C. G. FISHER.
Detroit, Mich.

On an engine old enough to date back to the period when the timing was not marked upon the surface of the flywheel take out the pet-cocks, or it will suffice to take out a single one. Then insert into that cylinder a scale or ruler, if the opening is large enough, and a piece of wire, if it happens that the hole is very small.

Turn the engine over very slowly by hand and carefully determine the upper and lower dead centers, as indicated on the rule or wire. These are indicated by the piston, and consequently, the rule, reaching the highest position and starting to go down again, in the case of the upper center, or reaching the bottom and starting up, in the case of the lower center. Mark these positions on the wire, or with the more convenient rule, note the exact point or dimension where they occur.

Now having determined the two dead centers, so that you can stop exactly at those points, you can proceed with the timing. First, it will be necessary to determine the timing which you wish to obtain, and this had better be the same as the makers of the engine intended or else you will have to have new cams made, which will be rather expensive.

Let us suppose that the cams are made to conform with the cycle which has been given in these columns several times lately, namely, inlet opens at 8 degrees past the upper center, closes at 26 past the lower center; exhaust opens at 46 before lower center, and closes at 5 past the upper. Now these angles mean little to you unless you are able to support the engine without the lower half of the crankcase, thus exposing the crankshaft, on which the angles should be measured. If you are not able to thus measure the angles directly upon the main shaft, you will have to transform them into inches of piston movement, which can be very readily measured.

To do this you must figure these points out, as you do not give the size of your en-

gine so that we could figure it out for you. In case you have a table of natural functions, this is an easy matter. Thus, let A be the length of the connecting rod, B the radius of the crank circle or half the stroke, a the angle included between the axis of the engine and the crank, which will be the angle given above at the upper center, and 180 minus the one given above for the lower center. Now then we wish from these three quantities to find the other side of a triangle formed by the crank, connecting rod, and the axis. Call this other side C. Then the first formula to use is:

$$\sin b = \frac{B \sin a}{A}$$

From this, the second angle is found by substituting for a the four angles given, remembering that for the two cases of the lower center, the angle to be used is 180 minus those given.

Now having two angles and two sides the third side is obtained using:

$$C = A \cos b + B \cos a.$$

Add the length B, and the connecting rod length A. From this total, subtract the quantity just found, or C.

The result will be the amount that the piston or the rule will be away from center, when the desired angle is reached. By measuring off these amounts on the measuring device, you have but to turn the crank over slowly until these points are reached, when the piston is in the right position for setting the cam.

To show you how easy the calculation goes, one of the distances will be worked out. Suppose a 5½ by 6 engine with a 12-inch connecting rod. Then A equals 12, and B is half of 6 or 3. Take the inlet opening, 8 degrees past center, for example. the sine of 8 degrees is .14, then in the first formula:

$$\sin b = \frac{3 \times .14}{12} = .035, \text{ then } B \text{ equals } 2 \text{ deg.}$$

Now in the second formula:

$$C = 12 \times .9994 + 3 \times .9903,$$

then C equals 14.963 inches.

Subtracting this from the radius plus the length of the rod or 15 inches, the distance obtained is .037 inch, the amount the piston will move down for an angle of 8 degrees past upper center.

WOOD FOR FRAMES

Editor THE AUTOMOBILE:

[1,902]—Will you please give me some idea of the form of construction used with wood side frames, that is, how is the wood used and put together for this purpose?
Churchtown, N. J. D. DE V. WOOD.

One form of wood frame used in a popular make of car consists of three layers of selected second-growth white ash. These are so selected that the grain in each one runs in a different direction. They are sized and prepared for use, then glued together, after which they are screwed. In addition, a top and bottom piece with the grain running in a way to shed moisture are added for protection.

MORE AMPERE DIFFERENTIAL

Editor THE AUTOMOBILE:

[1,903]—Regarding the article on the Ampere car in a recent issue of your paper, will you please inform me through "Letters Interesting and Instructive" if I am right in my understanding that the rear wheels are thrown out of circuit, and thus disconnected, when the brakes are applied?
New York City. C. L. MOHR.

If you will look at the answer to R. C. Jordan in the issue of THE AUTOMOBILE for May 27 (1892), you will probably find a partial answer to your question; at least the subject of the differential action is there explained. As to the rest of your question the left foot pedal, corresponding to the clutch on an ordinary car, when pushed forward, as if to throw out the clutch, cuts off the current to the clutches in the transmission, which really take the place of the master clutch in the flywheel.

Similarly, with the right pedal operating the rear hub brakes, it is our understanding that this only applies the brakes as in the ordinary car, and has no other action upon the car or its action, nor is it interconnected with the clutch pedal, which does influence the current.

As the present understanding, it is not a fact that the current is disturbed in the rear hubs, except as brought out in the answer to Jordan, namely, when the steering gear is turned so as to turn the wheels at least 15 degrees out of a straight ahead line. That is, the answer to your question is no, the application of the brakes does not cut off the current to the rear wheels.

HARDENING COPPER

Editor THE AUTOMOBILE:

[1,904]—Is there any process by which pure copper in the form of tubing or sheets can be hardened or toughened so as to allow of its use in places where the softness would be objectionable? If there is any such process, will you kindly give me the details of it.
Belleville, Kansas. C. G. DAY.

There is no known process which can be used on the metal as turned out from the mills, without altering its condition. If you have facilities for melting and repouring into the desired shape, the following receipt will be of service to you:

For every 40 pounds of copper to be hardened, take 2 pounds of alum and 8 ounces of arsenic. Mix the alum and arsenic together, and after melting the copper in a crucible, add the mixture slowly, stirring the whole thoroughly. After the molten mixture has been stirred for at least five minutes, it is ready to pour.

Copper treated in this way may be melted and remelted many times without injury or noticeable change in the composition. In addition, it may be rolled or drawn any number of times without injury. The alum and arsenic impart great density, toughness and hardness to the otherwise soft metal.

With a proof of the everyday use of this process by the average owner of an automobile, the mechanical world as a whole will be much the gainer. Copper is a valuable metal and its price restricts its use to certain parts, but softness has restricted it even more than price.



Automobile Roads in NORTH ITALY

By FRANCIS MILTOUN

THE three most commonly used mountain gateways into Italy are those over the Simplon, by Domodossola from Switzerland; over the Saint Bernard, by Aosta from Switzerland; or over Mont Genève or Mont Cenis, from France, via Susa. The most splendidly scenic of all is that over the Simplon.

The sudden apparition of Italy as one crosses the Alps by the Simplon Pass and descends upon Domodossola has been remarked before, but the many who now make the journey by road for the first time are bound to (hundreds to-day do it by automobile where scores did it by carriage in the days gone by) appreciate the same emotions as did travelers of old. Nothing is changed in general aspect, and the magic of the transformation from the forest-grown or glacier-peopled mountain sides of Switzerland to the sweet, smiling plains of Italy is a thing not to be justly described by any pen or adequately painted by any brush. No, nor can the kodakist, even, catch the mood; he indeed comes off worst of all. It is a thing to experience by one's senses. The emotions are purely personal ones, as those who have been here can attest.

Let rushing tourists who do the thing in four hours take to heart the experiences of Dom Bourdin, the Benedictine monk of the sixteenth century, who took three days to make the crossing. Frontier and passport regulations are lenient now, but the old monk in his day was held in durance vile for three rounds of the clock by the Spanish governor, who held the pass because the good man would not admit that his native land, the Franche-Comté, might not some day become Spanish. He said simply: "God puts crowns where he pleases; it is not for me to say who shall rule my land." This was a philosophical answer, and he held to it for three days, when the bombast official seeing finally that the brother would not give in passed him over. Verily, it would be folly to sigh for "the good old days."

From Turin the shortest and quickest way into France is via the dull, ancient town of Susa and the Col du Mont Genève, descending on Briançon; or by Mont Cenis, coming down to low level at Modane. There is not much to choose between them except that the last-named pass is apt to be closed by snow and ice as late as the first of June, whereas that by Mont Genève is usually kept open through the winter.

One leaves Turin and its gracious streets and boulevards by the gently rising Strada di Francia, thirty odd



kilometers, to Susa, the ancient Segusium of the Roman empire. We anticipated nothing difficult in making our way out of Italy on this occasion, the last week in May, and we rolled along comfortably enough and with an easy mind and conscience over the best roads we had found in Italy. We expected to stay the night at Susa and free the Mont Cenis in the morning. We stayed the night at the exceedingly primitive Albergo del Sola at Susa, but learned that the snows of winter were still lingering a meter deep *en haut*, so other plans were to be made. It was a case of crossing by Mont Genève, with its less beautifully graded road (some hills, in fact, grading 17 per cent.). We recalled the fact that Dante the wayfarer crossed over into France by this road centuries ago, and surely a modern automobile could make easy work of it. The traveler by automobile, too, may well repeat Dante's words: "*Come di nive in Alpe senza vento.*"

The road over the Col du Mont Cenis, 28 kilometers above Susa, has been used since time immemorial, though the present carriage road over which automobilists crawl up or down (over the magnificent "Scala") has existed only since 1812. Its elevation, of 2,080 meters, is the lowest of any of the Alpine passes into Italy, save that of its neighbor over Mont Genève, which is slightly less, but equally productive of superb scenery.

We had intended entering France via Modane and returning north via Grenoble, but, owing to the dilatoriness of the season, we were forced to make a 300-kilometer detour through Briançon, Embrun and Gap, for even the Col du Lautret in France was still snowbound, and snow means impassability here.

On leaving Susa via Mont Genève one meets the stiffest five kilometers on the itinerary immediately on leaving the town.

For some inexplicable reason, unless it was the direct capriciousness of Beelzebub, we could do literally nothing on this five kilometers just outside of Susa, and spent a day and another night finding out that nothing was the matter; that the piston had not gripped or a bearing fired; and that it was simply a good-sized pebble that had got wedged in between the flywheel and the engine casing, preventing the motor from "spinning" or even turning over on itself. It was one of those things that ought not to have delayed us for a moment, of course, so simple



The Salle à Manger Garage at Novara

it was to solve. But it did, all the same. Have you, dear reader, and accomplished motorist, ever met exactly the same thing? No; nor the writer, either; not before this occasion, and we were accordingly puzzled. Sometimes we are not so auto-wise as we think we are, or, at least, would like to believe.

Finally, at daybreak on the second morning, we set out to cover the 55 kilometers between Susa in Italy and Briançon in France. Take it on the whole it was a hard rise all the way along, though it leveled down to between 6 and 8 per cent. after Oulx. A ruined fortress, La Brunetta, once the key to the whole valley, sits high above Susa, and is still something more than a memory. With Exilles and Fenestrelles it formed the fortified frontier between Piedmont and France. Hannibal is supposed to have crossed the Alps via this road and to have urged his jaded men to climb the Monte di Roccia, 3,000 meters above Susa, that they might be encouraged by the sight of the rich Lombard plains stretching out before them.

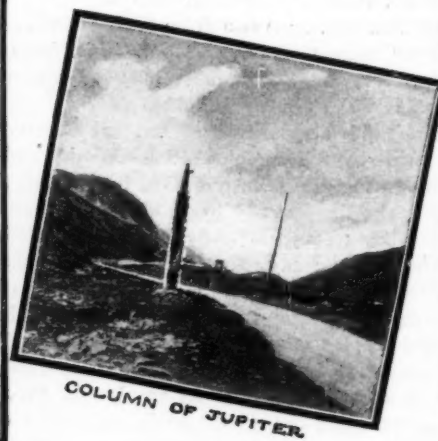
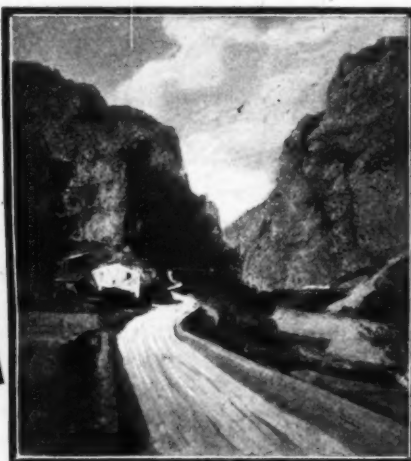
The Mont Genève road was built when Cottius submitted to Augustus. Beyond Susa it branches to the left, whilst that

best we had eaten in all Italy, and was priced accordingly. No garage accommodations were forthcoming, though the proprietor claimed to having room for a dozen automobiles. Well, he had—in the dining-room; that was where we put ours, and it wasn't a bad garage, either, as one may judge from the accompanying illustration. Novarra looks more like a French town than it does an Italian one, though a *salle à manger* garage is distinctly Italian, if it is anything.

Going out from Turin we fell in with a party of scouting motorcyclist soldiers of King Victor Emanuel, something of a novelty to an American who knows only the New York bicycle cop. The Italian army, like many other Italian institutions, is very modern. A series of recent maneuvers in the high Alpine valleys developed this entirely new type of soldier. Certainly the speed and economy with which the motorcycle can transport its bearer over roads entirely unsuitable for four-wheeled traffic makes its future assured for this class of soldiering. The horse is nowhere fit for this class of work. Imagine a powerful motorcycle carrying its rider up 15 per cent. mountain roads thick with



THE HOSPICE 2188 M



COLUMN OF JUPITER

The Pass of GRAND St. BERNARD

over Mont Cenis leads to the right. That over Mont Genève was the most frequented of all Roman roads between Italy and Cisalpine Gaul. The military road of Pompey and Caesar passed through Oulx and over the Col de Sestrières.

Via Mont Cenis the Italian *dogana* for fixing up one's papers is at Bard and the French *douane* at Lans-le-Bourg.

Via Mont Genève, Clavières and La Vachette, ten kilometers apart, perform the same functions, one on the Italian slope and the other in France, the actual crossing of the frontier being at an elevation of 1,860 meters.

From Milan westward the best sortie on France is via the Val d'Aoste and the petit Saint Bernard, say, 200 kilometers to Aosta, where the road divides, one section leading to Switzerland over the Grand Saint Bernard and the other via its little namesake into France via Moutiers and Albertville.

We had done this thing in times past, but on the present occasion it was too early in the season and it was for that reason we had turned to Turin.

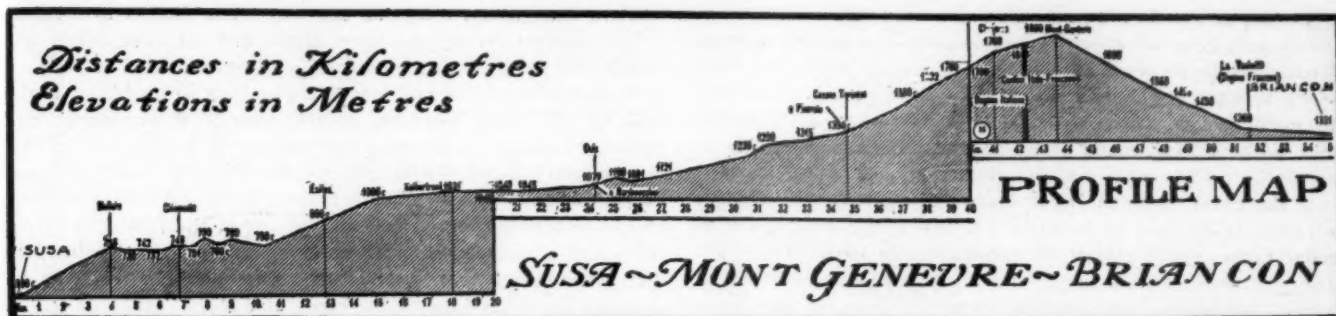
Milan is monumental from every point of view, from its cathedral to its restaurants, hotels and garages, and its streets, though mostly paved with great granite blocks, are a delight to ride over by reasons of the flat flags set down in the middle. They can only be compared to the famous "iron roads" of certain sections of New Jersey a few generations ago, which, if they still exist, must be a dream to the modern automobilist.

At Novarra we put for the night at the French-named Hôtel de la Ville. It was not bad at all, but dear; the dinner was the

dust and stony at that. Where the average horse can find a foothold so, too, can a motorcycle find a wheel track, and it does not lie down on the job through fatigue as does the quadruped. It may be hid in a thicket or behind a boulder and its soldier scout may climb some neighboring vantage point and scan the horizon for miles without fear that his steed will neigh, whinney or bolt. *Avanti!* has ever been the watchword of the Italian army, and it is a good one. Another entry from North Italy into France, though by no means a usual one, though we found it most interesting on a certain occasion, and, in fact, the only one to be considered for a moment if time and distance are to be taken note of in going from the Riviera to the Italian lakes is that via Cuneo and the Col de Tende.

This itinerary surveys the road from Turin to the Mediterranean, but there are no radical changes in making it in the opposite direction save in the reversed order of things.

Twenty kilometers from Turin is Carignano, with a storied past and famous for the beauty of its places of worship and its women. The church of Santa Maria della Grazie was the annex of a monastery of Franciscan friars, and was endowed by the Duchess Bianca, the wife of Charles I., whose monument it contains. She was one of the first of Carignano's ladies of surpassing beauty, and for that and her "*gentilezza*" the Chevalier Bayard, who had been brought up in the household of the duke, did his best to win a tournament which was being held in her honor on a certain occasion. He did win; that goes without saying of so chevalieresque a man.



Ten kilometers to the right beyond Carignano is Carmagnola. The women of Carmagnola possess a specious grace and beauty like those of Carignano which have gone down into history. A ravishing dancer of Paris in the days of the Citizen King was a lady known as "Carmagnola," and her specialty, besides breaking beaux hearts, was the dancing of the "carmagnole," which had its origin here, although the Marseillais think it is theirs. By what right they assume this it is hard to reason out, though the Savoyards, who made up a part of the famous "Marseilles Battalion" which marched on Paris to help capture the king's castle in revolutionary days, may have come from here. The female youth and beauty of Carmagnola dresses itself up with gay headdresses and strings of glass beads on the least provocation, and dances the carmagnole with a fervor only equaled by the Spanish senorita when she works hard at reeling off that barbaric series of convulsions which go with a pair of castanets and a loosely girt waistline. The two may, indeed, be related.

Still on towards the French frontier, ten kilometers more, and another beauty show is offered one at Racconigi. Maybe all the women of these parts are beautiful, the writer had perhaps best say so and be done with it. Here, at any rate, they are different from the ladies of the glass beads and the fierce contortions at Carmagnola, only a few minutes away. Besides its beautiful women Racconigi has a remarkable country castle or palace built by Palagi, "one of the most comfortable of the country houses of Piedmont," said a traveler of two centuries ago who had been invited thither.

Two castles and a fortification wall once surrounded Cavaller Maggiore, another dozen of kilometers farther on, but nothing but a badly paved street, some indifferent stone houses with overhanging eaves of tile or brick, and two grim half-tumbled walls will recall the pompously named little town to the automobilist once he has passed through. It is the dullest, deadest town of five thousand inhabitants in all Italy.

Savigliano is printed in slightly larger letters on the maps, and is honored by being noted down as a railway junction. Formerly fortified, it has no monuments of interest to-day save a great triumphal arch erected in honor of the marriage of Victor Amadeo and Christine of France.

Thirteen kilometers to the right is Saluzzo, the capital of the Marquises, who played the game of war in northern Italy so successfully in the fifteenth century that they very nearly became lords of all the region. Saluzzo was the birthplace of Pellico,

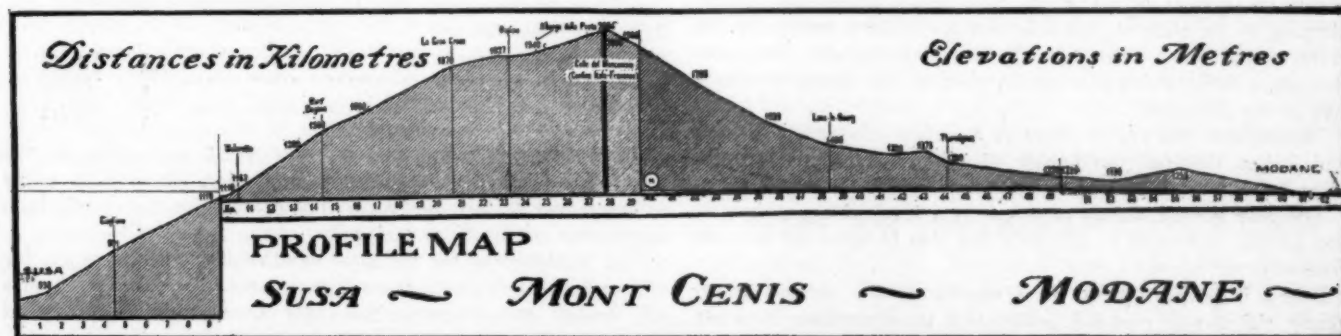
the author of "Francesco da Rimini," who got ten years' imprisonment as a result of too great a display of his patriotism by means of his talent. He is not a prophet without honor.

Cuneo to-day, in Italian, or Coni, in French, is a live, bustling place of 30,000 souls, who live by most of the industries which occupy the modern hand and mind. In the old days it was different. Cuneo originally was a place of refuge when Boniface, Marquis of Savoy, sought to oppress the people and made the other neighboring lords of castles do the same. As a blind the people assembled one day in the year 1100, supposedly as if on a pilgrimage to the Madonna del Bosco, a celebrated shrine of the neighborhood, determined to revenge themselves on the insults which had for long been cast upon their women folk by neighboring nobles. So successful a demonstration was made that many neighboring castles were razed, and the people, retreating to the peninsula-like small piece of land between the two rivers, started to build a city—the "*nuova villa di Cuneo*," as it was called by the Abbot of San Dalmazzo in his chronicle.

Afterwards Cuneo was one of the most celebrated military strongholds of Piedmont, and only after the battle of Marengo, when the three consuls decided to raze the walls of Cuneo, Milan and Tortona, was it shorn of its powers.

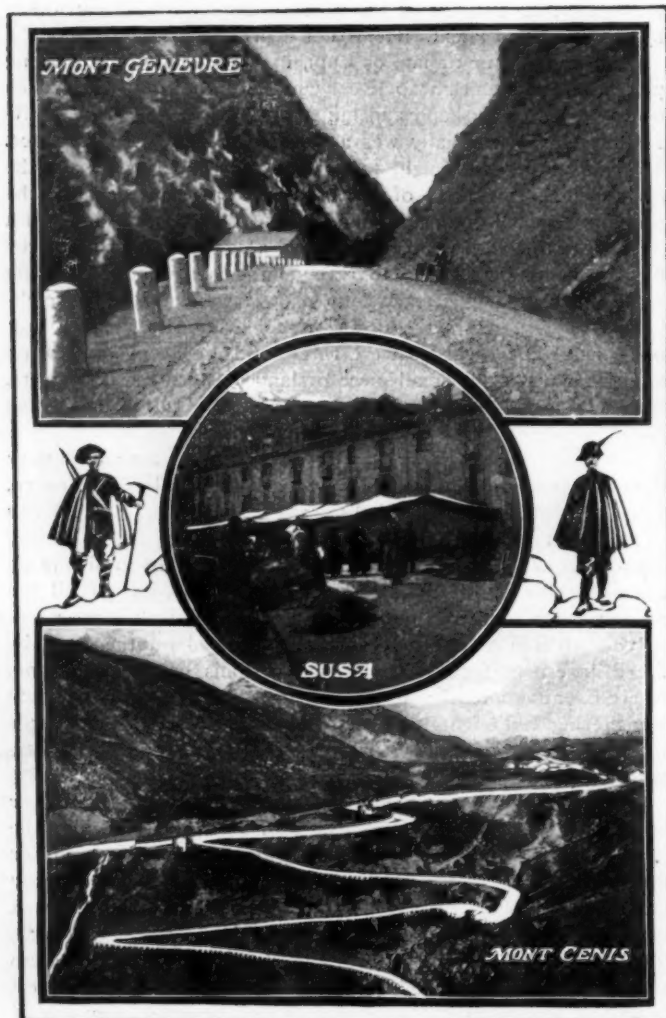
From Cuneo to the frontier the high road climbs gradually up towards the crest at the Col de Tende, the easiest of all the mountain roads in and out of Italy. At San Dalmazzo, a decayed and almost deserted burg, nearly wiped off the earth by the Milanese in 1250, is the Italian customs house, or *dogana*, where the automobilist and all other travelers by road pay tribute on entering Italy from France, and where those going towards France had best begin to get ready for the same operation a little further on.

The great plains of Piedmont and Lombardy are now far behind, though they may be seen still spreading out into the interminable distance. Now one begins literally to climb for the mass of the Maritime Alps of France and Italy are truly noble. Mont Viso raises its crest nearly 4,000 meters, and a typical Alpine road, though perhaps not the best that ever was, turns and twists its way in lacets until near the top one passes a deserted half-attempted tunnel which was supposed to cut off the climb somewhat. The road goes on, however, for several kilometers farther before the pass is actually reached, and the three kilometer tunnel remains as nothing but a fairy-like project which never came into being.



The Col di Tende, the pass where the road drops down on to French soil, is a bad enough place to pass in a gale or a snow storm, for the elements rage here with a fury which has been known to blow horses and mules and carts and men down into the ravine below. Otherwise the road is ranked as a grande route both in France and Italy, and accordingly practicable to automobile or any other wheeled traffic.

On the French side the road descends in seventy odd zigzags to Tende, at the foot of the Col. The soil is still Italian, and in feudal times Tende played no inconsiderable part. There are some remains of an old castle, and history says that Beatrice di Tenda, the wife of its old-time chatelain, was by her lord's orders tortured to death, so that's something to impress Tende on the mind.



This roadway of the Col de Tende was begun by Carlo Emanuel I., in 1591, and down through successive eras it has ever been improved. It now runs in tumbling, rollicking fashion beside the torrent of the Roya, with little eagle's-nest villages clinging to the cliffs in one side and the rushing waters boiling close on the other. Through the Gorge de Borghe one passes through a defile which is a worthy rival of the Gorge de Pierre Lys in the Pyrenees.

Throughout this region there is a strong mixture of French and Italian that one can hardly tell where one begins and the other leaves off.

The first French village is struck at a level of approximately 300 meters. Giandola is its name, but that is about all one will remember of it.

Sospel is better. It sits in a panoramic site surrounded by gently rising and rounded peaks, and its immediate environs, laid out with olive groves and vineyards, after the unmistakable

Riviera background towns all the way from Toulon to Menton.

The valley now becomes very fertile and the road winds less rudely and savagely as it descends gently to sea level at Nice.

A distinctly curious and interesting industry roundabout is the making of flower essences, notably orange flower water and lavender water. It is the most productive source of income to a country maiden with industrious habits, and with its proceeds she buys to-day "Bon Marché" finery instead of sticking to the picturesque old Niçois costume of a short skirt, a bright fichu and a pancake or crêpe hat such as Fragonard painted in pictures. Frangonard, by the way, was born at Grasse, so he came by the knowledge of the type naturally.

A road branches off from Sospel to Menton by the Col de Castigione, at a height of 800 meters, and the road is every bit as attractive as that direct into Nice.

From Sospel to Nice direct the road begins to climb immediately one leaves his hotel door, and goes on climbing until it gets eleven or twelve hundred meters above the sea, from whence it drops down as precipitately to the Promenade des Anglais.

GOOD FIELD FOR SALES IN MEXICO

Consul Lewis A. Martin submits the following report on the use of automobiles in the Mexican district of Chihuahua:

"Automobiles have been much in evidence in this city during the year past. They are as yet used principally for pleasure, but it is probable that they soon may be used for the delivery of goods and for conveying passengers. A Michigan company has an agency in this city and has sold quite a number of its machines here. There are a few other machines in use, but the great majority of automobiles seen here are of one manufacture. Some months ago there were eighteen automobiles destroyed in a fire which burned the garage where many private machines were stored. A few were rescued, but most of the machines were consumed before the fire could be controlled. This disaster leaves an opening for the sale of as many more. The machines here are used by professional men and by gentlemen interested in mines who live in the city, as well as by persons with means who use them for pleasure.

There are in this city quite a number of wealthy Mexican families who are able to own the very best make of automobiles and they do not care for the price of such things. They like the best and most luxurious conveyances. The most of these people are supplied with fine carriages and beautiful spans of horses, but the keeping of horses in this city is very expensive, and it is understood that the automobile is more economical. There is no competition here in the automobile trade. All those in use are American-built machines and, with few exceptions, all were sold by the Michigan company, no other manufacturer being represented in this city. The type for which a demand could be created here is a light-weight, low-price car, requiring a small amount for upkeep, the roads in this section being hilly and rough and very hard on tires and parts liable to breakage.

APRIL IMPORTS SHOW BIG INCREASE

The monthly summary of the Department of Commerce and Labor shows that for the month of April 185 automobiles were imported of a value of \$312,159 as compared with 58 valued at \$148,603 for the corresponding period of 1908. This, added to previous imports, brings the total for the ten months up to 1,300 machines, with a value of \$2,357,129. This is far in excess of the figures for last year, which were 902 cars, valued at \$2,176,428, and exceeds the number, but not the value, of the 1907 importations—1,008 machines and \$3,505,388 value.

Of the machines imported in the month the geographical distribution is as follows:

United Kingdom	7	\$18,557
France	136	203,954
Germany	8	21,964
Italy	29	56,477
Other Countries	5	11,207

In addition there were parts brought in amounting to the sum of \$50,997. The table of distribution shows that every country except Italy doubled its importation for the month, both in number of machines and value.

The exportations for the same month tell a different story, for the exports of domestic manufacture were nil, while the exports of foreign manufacture show only four machines valued at \$12,579, and no parts.



Capt. Thomas S. Baldwin in His Dirigible Airship Making a Successful Flight at North Arlington, New Jersey

PARIS, May 28—The full program has just been issued of the important aeroplane races to take place in the neighborhood of the city of Rheims from August 22 to 29, and which will undoubtedly provide excellent sport of an altogether unusual kind. The ground over which the races are to be held is a vast plain, without trees or any other obstructions, the size of which can be judged from the fact that it has been the scene of some of the largest military reviews Europe has ever known. It is over this course that a special track has been laid down, giving a round of about 6 1-2 miles, over which the aeroplanes will fly without danger of doing injury to spectators if for any reason whatever they are obliged to land during a race. The total prize list amounts to no less than \$40,000, which alone is sufficient to assure participation of the world's best aeronauts.

On the opening day, Sunday, August 22, the elimination race for the Gordon Bennett aeronautical cup will be run off, with a view to selecting the three pilots and machines to represent France. The final of the Gordon Bennett event will take place on Saturday, August 28, the winner to receive, in addition to the work of art, a cash prize of \$5,000. On the same day the first starters will be sent away for the Grand Prix de la Champagne, the prizes for which total \$20,000, of which \$10,000 goes to the first. The third item on the program for the first day is the speed test for one round of the course, the aviator making the fastest time to be the winner of the \$1,400 prize; the second prize is \$600. Both the Grand Prix and the circular race will be continued on each day of the meeting, the fastest times on any one day determining the winner. The first series of the dirigible balloon races will also be held on the opening day, the prizes for this amounting to \$2,000.

On the second day of the meet the straightaway speed test will be run for the first time, as well as the competition for the passenger carrying aeroplanes, for which the total prizes amount to \$2,000. The circular race, comprising one round of the course only, and the dirigible balloon contest will be continued on this day, while Tuesday will be occupied with the same two events.

Wednesday, August 25, will see the second day of the Grand Prix and the fourth day's competition for the dirigible balloons and the circular event. On Thursday, August 26, there will be a modification of the usual proceedings in the shape of a landing competition for spherical balloons, to be followed by the fifth day's races for the circular course and the dirigible balloons. On Friday the last races will be run for the Grand Prix

and the sixth attempts made for the circular race and the dirigible balloon contests, these two latter being continued on the Saturday, in addition to the final for the Gordon Bennett cup. The closing day of the meet, Sunday, August 29, will see the final races for the speed test, the circular test, the dirigible balloon test, and a competition for the \$2,000 offered to the pilot attaining the greatest altitude.

There are very few restrictions regarding the aeroplanes, any type of machine being admitted and any style of motor being allowed. The regulations, however, forbid the modification or changing of any part after the aeroplanes have been brought to the competition ground. Entries at the rate of \$200 per flying machine are received in Paris until the evening of July 22. This sum will be refunded to all pilots crossing the starting line once, and will give the entrants the use of a special shed. Late entries are received until August 10 on payment of double fees, of which amount \$20 will be retained by the local committee if the machine crosses the starting line. Garage accommodation is not assured to late entrants.

BALDWIN'S AIRSHIP FLIES REPEATEDLY

NORTH ARLINGTON, N. J., June 1—Captain Thomas S. Baldwin made good all of his promises for the airship which he has constructed in the aeronautical carnival here last week by repeated flights, varying from a few yards to several miles.

The machine is of the dirigible balloon type, the exterior gas bag being about eighty-six feet long. With this small machine Baldwin on Thursday flew nearly two miles at a height of 200 feet. The following day even this performance was bettered when he reached a very high altitude and covered a distance of more than twice the previous flight. The latter achievement was even more meritorious, for the aviator described several circles to prove his perfect control over the machine.

At the luncheon of the West Hudson Aero Club on Monday he was presented with the first commemorative gold medal of the Aero Club of America for these performances.

PLANS FOR THE GERMAN AIRSHIP LINES

WASHINGTON, D. C., June 1—Consul T. J. Albert, of Brunswick, in reporting that the German Aerial Navigation Company, of Frankfort-on-Main, has established the first permanent air-

ship lines in Germany, gives the following very interesting details: It is the purpose of the company at the start to connect fully 30 cities. It has already received patents for its turn halls for motor balloons, and it will erect the first halls in Berlin, Munich and Strassburg, in Alsace. The extensive plans of the company have aroused the liveliest interest on all sides, and their execution appears to be financially assured.

The first line of connection planned is Munich to Dresden by way of Nuremberg, Plauen and Chemnitz. The second line is from Munich to Cassel by way of Ulm, Stuttgart, Mannheim, Mayence, Coblenz, Cologne, Düsseldorf, Elberfeld and Paderborn. The third line is from Berlin to Lübeck by way of Bremen and Hamburg. The fourth line is from Berlin to Königsberg by way of Stettin and Danzig. The fifth line is from Strassburg to Berlin by way of Metz, Trier, Mayence, Frankfurt, Erfurt, Leipzig, Halle and Magdeburg.

WRIGHT PUPIL MAKES NEW FRENCH RECORD

PAU, FRANCE, May 26—Paul Tissandier, Wilbur Wright's first pupil, has established a new French flying record by remaining in the air 1 hour 2 minutes on a French-built Wright machine. The previous French record was held by Henry Farman, who on October 2 remained aloft at Chalons for 44 minutes 32 seconds. The record of Leon Delagrangé, with the same type of machine as used by Farman, stands at 30 minutes 27 seconds. Paul Tissandier made his first flight in full charge of the Wright aeroplane on February 18 after seven lessons lasting altogether 2 hours 20 minutes. On this occasion Wilbur Wright was by his side, but did not touch any of the controlling levers. The following day the French pilot made a second flight, lasting twenty minutes, under exactly similar conditions, and was then promoted to the stage of instructor. He is now employed by the French company holding the Wright patents to train pupils in the handling of this machine. Paul Tissandier will be a member of the French team in the Gordon Bennett aeroplane race to be run at Rheims on Saturday, August 28.

BRITISH ARMY AEROPLANE FLIES ONE MILE

LONDON, May 25—It certainly appears that the luckless S. F. Cody has come to the end of his run of failures with the aeroplane which he built last year for the army but which has never yet made a satisfactory flight. On the 14th inst. he made a straightway run of over a mile at a height of 30 feet and repeated the performance a second time. At the third trial, at which the Prince and Princess of Wales were present, the machine struck a bank after covering 200 yards, but without effecting much damage. Hope is now freely expressed that this type of machine will soon begin to display some of the advantages which it is claimed to possess.

BRITISH CONTESTS PROGRAM FOR SEASON IS LIGHT

LONDON, May 25—This is to be a quiet season as far as races and trials are concerned, for there are to be none of the former and but two of the latter, the smallest schedule the United Kingdom has known since the advent of automobiling.

The Irish A. C. leads off next week with its annual five days' reliability trial, run in two sections, for private owners and the trade respectively.

The more popular Scottish Trial follows in the third week of June and is this year extended to a distance of 1,000 miles. Nearly seventy entries have been booked, the last of all being the new 38 h.p. Minerva, with Knight engine, made by the Belgian licensees. This will be the first appearance of the slide valve engine in open competition, but matters will not rest there, for the Daimler Company are, as usual, concentrating their forces

ZEPPELIN AIRSHIP FLIES 935 MILES

BERLIN, June 2—After covering a distance of about 935 miles in thirty-seven hours, *Zeppelin II* (the famous airship of Count Zeppelin which replaced *Zeppelin I*, that was destroyed by fire last year), in descending for a fresh supply of gasoline for her engines, near Goppingen, in Wurtemberg, ran into a pear tree with such force as to rip the forward compartment of the aluminum envelope for a space of ninety feet. The accident occurred about 11 o'clock on Monday morning.

The airship left the floating shed at Lake Constance shortly after 9 o'clock Saturday night with Berlin as the objective point, where Emperor William was to witness its arrival. Owing to the strong head winds it was deemed inadvisable to proceed nearer to Berlin than Bitterfeld, some four hundred miles from the starting point. The dirigible was here turned about for the homeward course, and the distance covered, while it was in the air, including the maneuvers, prior to the accident, totaled 935 miles. Count Zeppelin, two engineers and a crew of seven men composed the party of aviation.

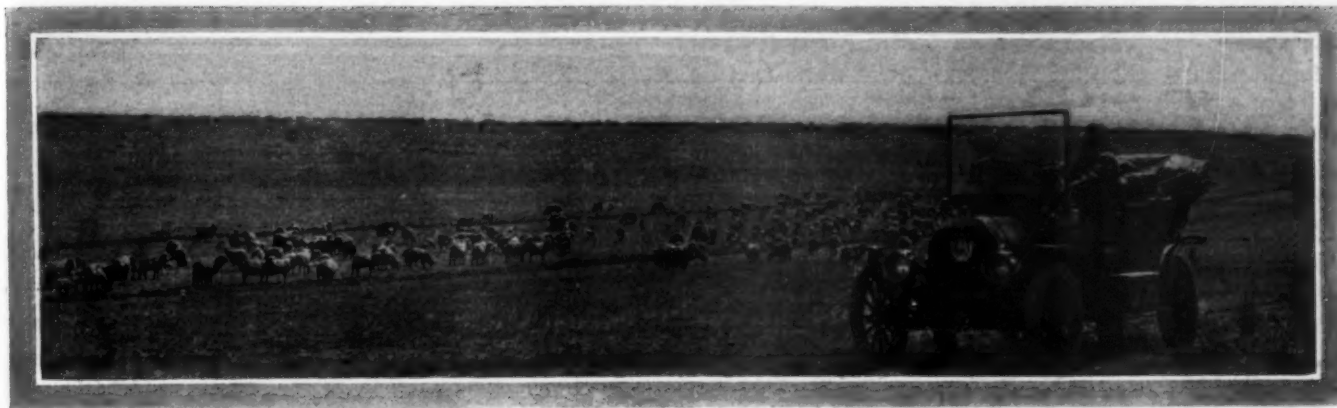
The trip demonstrates the wonderful possibilities of aerial navigation and the accident in descending could have been avoided by more careful steering. Temporary repairs were made to-day and the airship started on its homeward journey, making about ninety miles the first six hours of its flight.

Doubts Ability to Reach Great Heights—Professor David Todd, of Amherst, is planning a balloon trip in which he will aim to reach the greatest height ever attained by man, more than 20,000 feet. A. Holland Forbes, the aeronaut, however, expresses his doubt as to the ability of any balloon to get that high, stating that the reported altitude of 36,000 feet was accepted without proof. Four miles, he thinks is the limit, and it would be extremely difficult to even get that high. Professor Todd talks of using a steel air-tight basket with arrangements for compressing air in the chamber at high altitudes, and of carrying 10 miles of fine steel wire with which to keep in telegraphic communication with the earth. It has been reported that he has been offered the use of the new balloon of the New England Aero Club, the Massachusetts, and that the ascent will be made from Canton, Ohio.

Wilson Plans Flights at Bangor Fair—Aeroplane flights for the Eastern Maine State Fair at Bangor in the fall are planned by the management and A. V. Wilson, of Bar Harbor. Mr. Wilson has a machine which has been seen in New York and other States, called the Old Hen, and his most successful flight was one of 1,710 feet, at an altitude of 27 feet. It is equipped with an engine of 18 horsepower and will be entered in the competition for the New York *World* \$10,000 prize for the fastest time between New York and Albany.

on the hill climbs, of which the Rivington Pike, for the North of England, and Shelsey Walsh, for the Midlands, are the principal events.

There will be no road racing this year, despite the fact that the Isle of Man authorities are willing, and even anxious, that there should be a continuance of the Tourist Trophy series. The gap will be filled to some extent by the Brooklands track, which has four big meets to come off, the first being held next weekend. At this meet interest will be centered on the attempts at record by Baker White's big Fiat, the most powerful car ever turned out by the Turin firm. The rated power of the engine is over the 200-h.p. mark, so that a phenomenal speed is quite a possibility. The other events of the same meeting will be mainly handicap races for amateurs.



Sheep Ranch in Eastern Colorado on the Route of the Tour for the Glidden Trophy

EARLY ENTRIES FOR GLIDDEN TOUR SET NEW FIGURES

PREDICTIONS that the 1909 tour of the A. A. A. for the Glidden, Hower and Detroit trophies would be the largest entered national tour ever held have shown evidences of realization. Paid entries to the number of thirty-three have been received by Chairman Hower, and on May 24 the number was within a couple of being four times as many as were on hand for the corresponding dates of previous years.

Pierce, Premier, and E-M-F lead with four cars each; Chalmers-Detroit, Maxwell, and Moline will be represented by trios; Brush and Stoddard-Dayton will have two apiece, and American Simplex, Hupmobile, Jewel, Glide, Rapid and McIntyre will have single cars. Inasmuch as it is no longer necessary to enter complete teams in order to secure the much-coveted Glidden cup, it is possible for many concerns to list individual cars and parties. The presence of thirty-three automobiles would alone be considered as a tour of good size, but it is stated from the headquarters of the national contest board that this number will be doubled easily, and probably trebled, before the entries close on June 15, or at least before the start, when cars will be received at additional fees.

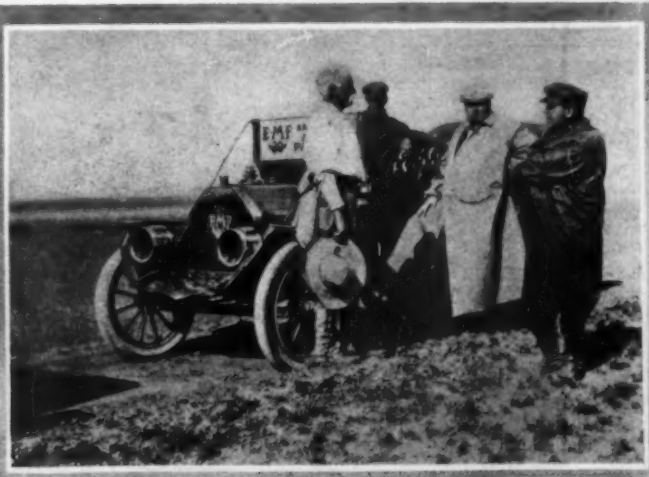
The mapping out of the route, except a certain section from Minneapolis to Omaha, has been completed, and at present the plans call for a start of the caravan from Detroit on July 12, finishing at Kansas City on July 29, an elapsed time of eighteen days, with fourteen used in running. Dai Lewis and his pathfinding party in the E-M-F touring car traveled a total of 2,832 miles in going over the route, but the figures for those who are to follow were 2,624, showing that the E-M-F had to run over 200 miles more than required. It is likely that the resurvey will lower the official figures by about 100 miles, when some of

the directions are changed between the Twin Cities and the Missouri River, taking in Mason City instead of Mankato. Several important reasons for the alteration have arisen, among them being the fact that to go by way of Mankato would necessitate the addition of an extra day to the itinerary. The only way this could be added would be to start on Sunday, or the two days planned to stay in Denver would have to be reduced to one. Both are impracticable, however; the latter because the greatest sightseeing trips of the tour are to be enjoyed there, including excursions to the Garden of the Gods, the Grand Cañon, and other Rocky Mountain points. A fund of \$18,000 has been raised by the Denver club for the entertainment of the tourists, and to shorten the stay would be a disappointment both to the hosts and to the guests.

According to the reports of Pathfinder "Dai," the interest in the Middle West over the coming event is intense, surpassing anything that has happened in many years, and throughout the States of Wisconsin, Minnesota, Iowa, Nebraska, Colorado, and Kansas every farmer who talked to the party either owned an automobile or was talking of buying one. Kansas City is the third largest automobile distributing point in the country, and one town passed through between Denver and the finish, Ellis, has a population of 1,500, and there are more than 100 automobiles owned there now. When the Mile-High city was reached the Pathfinders were escorted through the streets by 143 automobiles, bombs were shot off, and a brass band joined in the celebration. The two days scheduled to be spent in Denver are July 24 and 25. Minneapolis will have July 17 and 18, and its autoists are planning entertainment features which will long be remembered.



Convention Hall, Kansas City, the Tour's Terminus



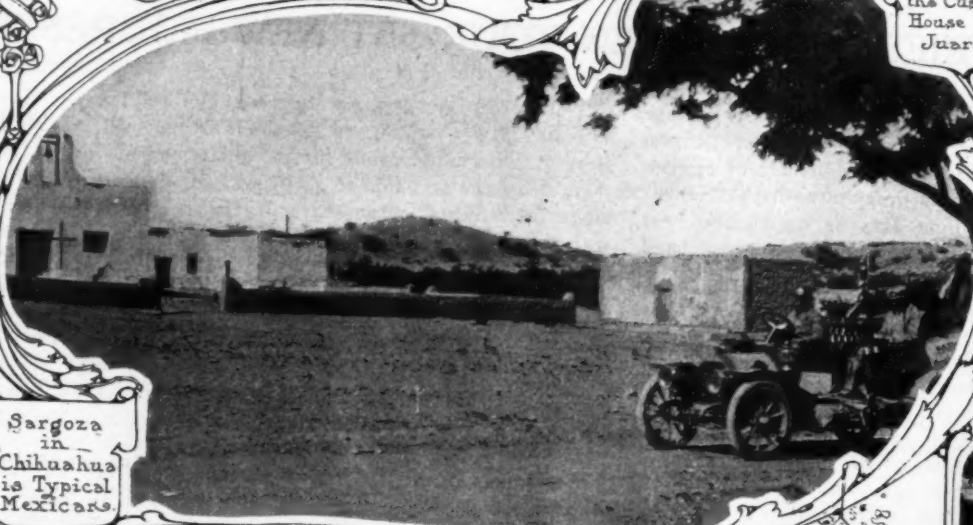
Pathfinder Lewis Meets Veteran Pedestrian Weston

En Route to call upon Diaz

CAR, CHALMERS-DETROIT
SPOONER
PHOTOGRAPHER



Passing through
the Customs
House at
Juarez



Sargoza
in
Chihuahua
is Typical
Mexicans.



Before the
food gave out



Called an
average
road.



The Horse brought water.

FLAG TO FLAG CAR PROGRESSES

TORREON, MEXICO, May 27.—The Chalmers-Detroit pathfinding car for the Flag to Flag race reached here to-day after making 156 miles in thirteen hours and 310 miles since Monday. To-day will be a day of rest, and will be spent in finding a new guide for the Mexican roads, which are to come on the last leg of the tour to the City of Mexico.

The car is apparently in Chihuahua province and not far from the principal city of the same name, which is but 220 miles from Ciudad Juarez, where the line was crossed. If the general direction thus far be continued, the provinces to be crossed next, with the distances, will be: Durango, 300 miles; Zacatecas, 175 miles; Agua Calientes, 75 miles; Guanajuato, 100 miles, and finally, Mexico province to Mexico City, 175 miles. This makes total from the border line of 1,045 miles, which is by map and air-line distances at that, probably the car will travel 1,500 miles to actually cover this same country. With the distance already traversed, there remain about 1,300 miles before the goal is reached.

INDIANAPOLIS TO CHICAGO AUTOWAY

INDIANAPOLIS, IND., May 31.—A boulevard connecting this city with Chicago is the plan of a number of capitalists of this and other States, according to Charles S. Hernley, of Newcastle, who is interested in the project. Because of the magnitude of the project, which will require a highway 200 miles long, there has been considerable scepticism relative to the scheme, but the promoters assert they are serious in their intentions. The boulevard, by a conservative estimate, is expected to cost from \$1,500,000 to \$2,000,000.

The plan is to obtain a private right of way between the two cities and build a model highway to be used by automobiles exclusively. The highway will be fenced, and in all probability there will be no speed restrictions.

Mr. Hernley announces that associated with him in the project are Benjamin F. Briscoe, of Tarrytown, N. Y., of the Maxwell-Briscoe Motor Company; Carl G. Fisher, president of the Prest-O-Lite Company and interested in the Indianapolis Motor Speedway, and other automobile men whose names he is not at liberty to mention at the present time.

The company will have an authorized capitalization of \$250,000 and shares will be sold at \$100 each. As the work progresses the capital stock will be increased.

ROAD TELEPHONE SYSTEM FOR TOURISTS

SANTA BARBARA, CAL., May 31.—Telephone communication from almost any point while touring may be a possibility if certain plans outlined in this city are carried out. Fred Spoeri, division contract agent of the Pacific Telephone & Telegraph Company, has suggested a road 'phone for use exclusively by automobilists. By a nominal monthly rental the tourists would be supplied with telephone outfits similar to those used by linemen, and every mile a wire would be run down the pole from the main line, there installing a "jack" or connection. Thus a tourist would never be more than half a mile from a telephone wire, and the scheme would be especially adaptable in southern California, where nearly all highways are paralleled by telephone systems.

CLEVELAND AUTOISTS POSTING SIGNS

CLEVELAND, May 31.—Using the old Studebaker "war car," which is also to be employed as a press car in the Glidden tour this year, the officers of the Cleveland Automobile Club are now signboarding a goodly portion of northern Ohio. Old signs are being renewed wherever necessary, while many other highways are receiving signs for the first time. When the work is completed it is expected that the northern part of the State, both east and west of Cleveland, as well as south, will be completely covered with clear road directions.

THE AUTOMOBILE CALENDAR

AMERICAN

Shows, Meetings, Etc.

- Nov. 6-13.....Atlanta, Ga., Auditorium-Armory, National Automobile Show.
- Dec. 31-Jan. 7....New York City, Grand Central Palace, Decennial International Automobile Show: American Motor Car Manufacturers' Association, with Importers Automobile Salon and Motor and Accessory Manufacturers. Alfred Reeves, General Manager, 505 Fifth Avenue, New York.
- Jan. 8-15.....New York City, Madison Square Garden, Tenth National Show, Association of Licensed Automobile Manufacturers.
- Feb. 5-12.....Chicago, Coliseum, Ninth Annual Automobile Show, National Association of Automobile Manufacturers. S. A. Miles, General Manager.

Races, Hill Climbs, Etc.

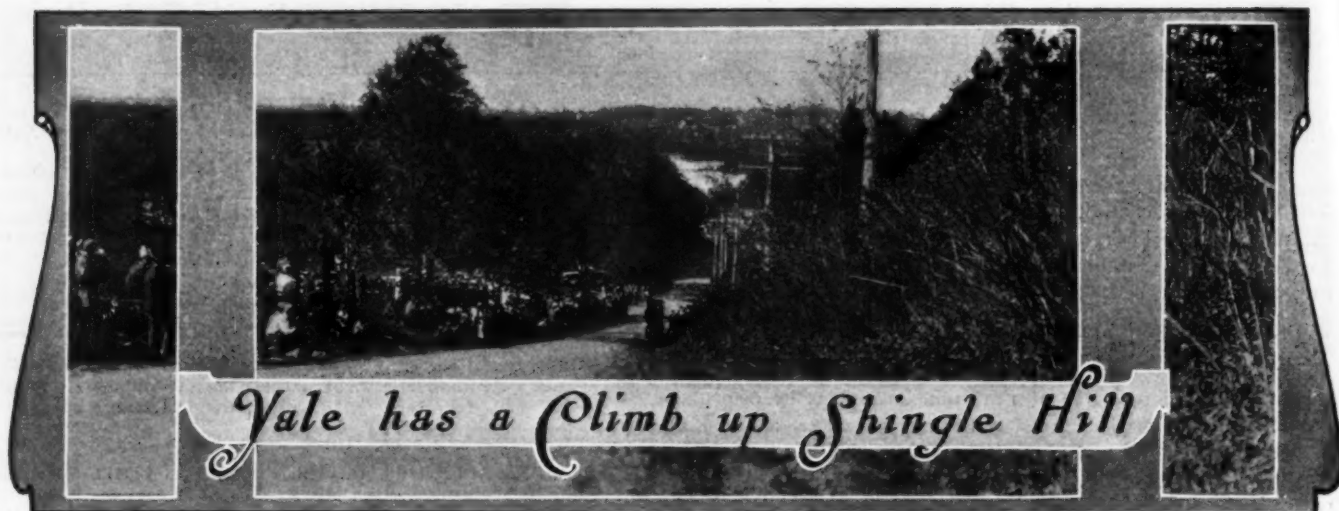
- June 5.....Cleveland, O., Hill Climb, Porter Hill, Cleveland Automobile Club.
- June 9.....Louisville, Ky., Track Race Meet, Louisville Imperial Council Committee.
- June 9.....National Orphans' Day.
- June 12.....Wilmington, Del., 106-Mile Sealed Time Run, Delaware Automobile Association.
- June 12.....Worcester, Mass., Annual Dead Horse Hill Climb, Worcester Automobile Club.
- June 12-14.....New York City, Catskill-Berkshire Endurance Contest, New York Automobile Trade Association.
- June 14-18.....Philadelphia Reliability Run to Pittsburg and Return, Quaker City Motor Club.
- June 14-21.....Annual 660-Mile Spring Tour Maxwell-Briscoe Motor Club, New York City via Waterbury, Stockbridge, Newburgh, Delaware Water Gap, Philadelphia, Atlantic City, to New York.
- June 17.....Readville, Mass., Track Race Meet, Bay State Automobile Association.
- June 18-19.....Chicago, Stock Chassis Race for Cobe Trophy and Light Car Race.
- June 21-26.....Binghamton, N. Y., Fourth Annual Endurance Run, Binghamton Automobile Club.
- June 22-28.....Albany, N. Y., Fifth Annual Tour, Bretton Woods, Portsmouth, Boston, Albany Automobile Club.
- June 24-26.....Montreal, Blue Bonnets Track, Race Meet. R. M. Jaffray, Manager.
- June 25-26.....Philadelphia, 24-Hour Track Race, Quaker City Motor Club.
- July 3 and 5.....Wildwood, N. J., Straightaway Races, Motor Club of Wildwood.
- July 4.....Los Angeles, Cal., Southern California Automobile Dealers' Association. Road Races, 250 Miles for Large Cars; 150 Miles for Light Cars.
- July 12.....Detroit, Start of Sixth Annual A. A. A. Tour for Glidden Trophy.
- Aug. 5.....Chicago, Fourth Annual Algonquin Hill Climb, Chicago Motor Club.
- Sept. 6-11.....Lowell, Mass., Automobile Carnival, Lowell Automobile Club.
- Sept. 15.....Denver, Col., Start of Flag to Flag Endurance Run to Mexico City.
- Oct. 7.....Philadelphia, Second Annual Stock Chassis, 200-mile Race, Fairmount Park, Quaker City, M. C.
- Dec. 29-30.....Philadelphia, Fourth Annual Midwinter Endurance Contest, Quaker City Motor Club.

FOREIGN

Races, Hill Climbs, Etc.

- June 10-18.....Germany, Prince Henry Cup Competition.
- June 14-19.....Scotland, Annual Scottish Reliability Trials.
- June 20.....France, Bologne-sur-Mer Course, Voiturette Race, Auspices "L'Auto."
- July 13-17.....Belgium, Ostend Automobile Race Week.
- Aug. 22-29.....France, Reims, Aeroplane Races and Grand Prix, Aero Club of France.
- Sept. 5.....France, Mont Venteux Hill Climb.
- Sept. 19.....Austria Semmering Hill Climb.

Emperor William of Germany has signed the muchly contested motor liability law which now becomes a stern reality. It remains to be seen what influence it will have on the trade.



Yale has a Climb up Shingle Hill

NEW HAVEN, CONN., May 31—Some tall hill-climbing took place up Shingle Hill on the afternoon of May 26, for an overflowing entry was attracted to the second ascent of the Yale Automobile Club. While the "big fellows" attracted the interest of those seeking the spectacular, the performances of the stock cars found the greatest favor, for those contests involved machines, duplicates of which are purchaseable by the general public. The Simplex got the high-price class with Stoddard-Dayton the star in the next brigade and then Knox took the prize in two divisions.

A feature was the perfect regulation of the course, not by uniformed officials, but handled in a masterful manner by the students themselves. The fact that the 15,000 spectators did not crowd upon the road or embarrass the contestants is proof sufficient of the result. Shingle Hill is not in itself a great incline, and, in fact, when some of those visitors who have witnessed the climbs at Wilkes-Barre, Mount Washington and elsewhere arrived they asked the whereabouts of the "hill," not realizing that they were upon it. The distance covered was seven-eighths of a mile, with two main rises, one of about 15 per cent close to the start and the other near the finish.

It was expected that David Bruce Brown would capture the free-for-all honors with the 120-horsepower Benz, and he did so handily, flashing up the hill in 51 1-5 seconds.

The motorcycles had several sections to themselves, depending upon their piston displacement for classification, and many operated by Yale students, among whom this type of locomotion is very popular. Bill Wray, not of Yale, was the star, and his twin-cylinder Indian flew over the course in 52 2-5 seconds.

Under the direction of prominent officials the events were dispatched in quick time and to the gratification of all con-

cerned. Fred J. Wagner was the starter, and Robert Lee Morrell acted as referee. Summaries of the auto events follow:

STOCK CARS SELLING FOR \$4,001 OR OVER.

No.	Car.	H.P.	Driver.	Time.
1.	Simplex	90	Moult	1:04
2.	Simplex	60	Broesel	1:05 3-5
3.	Isotta	30	Pepperday	1:07 2-5
4.	Lozier	45	Beebe	1:13 3-5
5.	Stearns	30	Doyg	1:16 1-5

STOCK CARS SELLING FROM \$3,001 TO \$4,000.

1.	Stoddard-Dayton	60	Miller	1:05 3-5
2.	A-K	48	Reppingill	1:19 3-5
3.	Packard	30	Bourne	1:21 3-5
4.	Thomas	70	Bran	1:23 3-5

STOCK CARS COSTING UNDER \$3,000.

1.	Knox	38	Bourque	1:00
2.	Chalmers	40	Cameron	1:02 1-5
3.	Chalmers	40	Lorimer	1:05 3-5
4.	Buick	30	Burman	1:05 4-5
5.	Stoddard-Dayton	45	Tuttle	1:07 1-5

CARS SELLING FROM \$2,001 TO \$3,000.

1.	Knox	38	Belcher	1:05 1-5
2.	Chalmers	40	Cameron	1:07 3-5
3.	Stoddard-Dayton	45	Tuttle	1:08 2-5
4.	Chalmers	40	Lorimer	1:09 4-5
5.	Knox	38	Bourque	1:10

CARS SELLING FROM \$1,251 TO \$2,000.

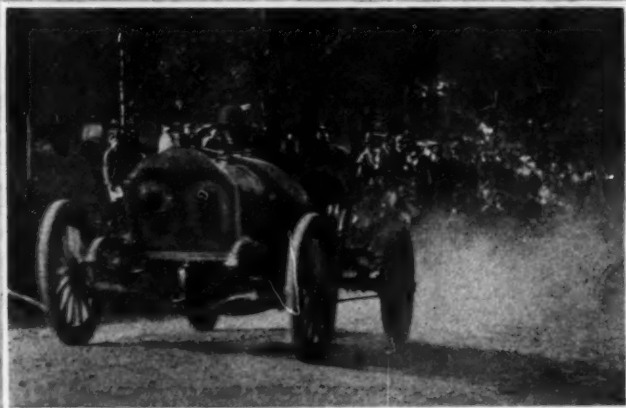
1.	Buick	18	Burman	1:07 3-5
2.	Buick	30	Bull	1:18 1-5
3.	Chalmers	30	Decker	1:35 4-5

CARS SELLING UNDER \$1,250.

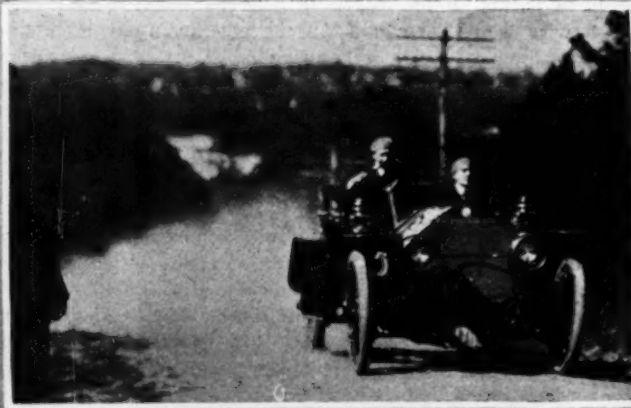
1.	Buick	18	Burman	1:19 4-5
2.	Overland	22	Gates	1:56

FREE FOR ALL—ALL MAKES AND POWERS.

1.	Benz	120	Brown	51 1-5
2.	Panhard	120	Webb	57
3.	Knox	48	Dennison	58 3-5
4.	Knox	38	Bourque	1:00 2-5
5.	Columbia	32	Coffee	1:00 4-5



Bourque in Knox Winning His Stock Car Class



Moult Driving Simplex to Victory at New Haven



Driver David Bruce Brown, His Benz and Mechanician



Where the Officials Figured Out the Results

PEERLESS AND MERCER WIN AT TRENTON

TRENTON, N. J., May 31—Peerless and Mercer automobiles to-day won in their respective classes in the run-off of the tie made in the Delaware Valley endurance contest on May 17. Over a circuit of 64 miles, it required six laps to produce a winner, and the Mercer took an extra round for good luck. Out of the 21 starters in the original contest there were 12 with clean records, but only eight appeared for the supplementary event this morning. They were: Peerless, Oldsmobile and Stoddard-Dayton, in the class for cars costing more than \$2,000; and Mercer, Overland, Regal, Maxwell and Crawford, in the class for cars selling for less than \$2,000. The Stoddard-Dayton made one round and was then withdrawn, for its owner did not wish to punish his own car unnecessarily; and the Oldsmobile completed the 384 miles perfectly, but inasmuch as both the Olds and the Peerless were entered by R. C. Manning, he directed that the Olds should take second place, giving the Peerless first.

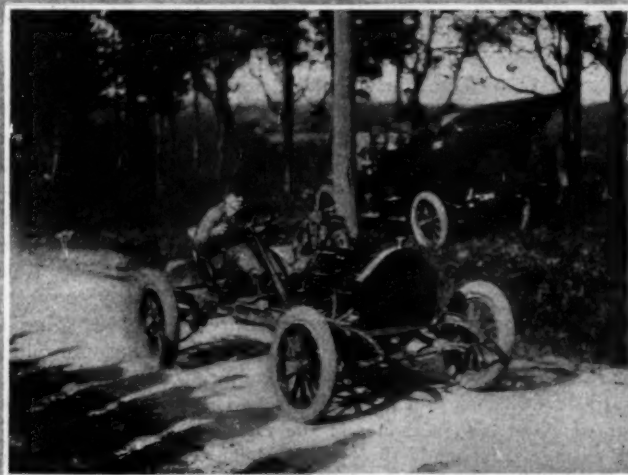
The Crawford car ran smoothly until dark to-night, when it had trouble with its lights and driver Shedd then withdrew. The Maxwell withdrew in the first round, and on the second the Regal skidded into a ditch at Cookestown. It was not damaged, but did not continue in the contest. The Overland was penalized for lateness on the sixth lap because of darkness and the absence of headlights. Its driver has protested the Mercer because the driver of the Trenton-made car was handed a searchlight at Cookestown, thereby enabling him to drive faster in the dark. The Mercer Company suggests a duel contest on the fair grounds track, if the protest is upheld, to run the two cars until one stops, with a maximum allowed speed of 40 miles per hour.

WORCESTER'S DEAD HORSE CLIMB MUCH ALIVE

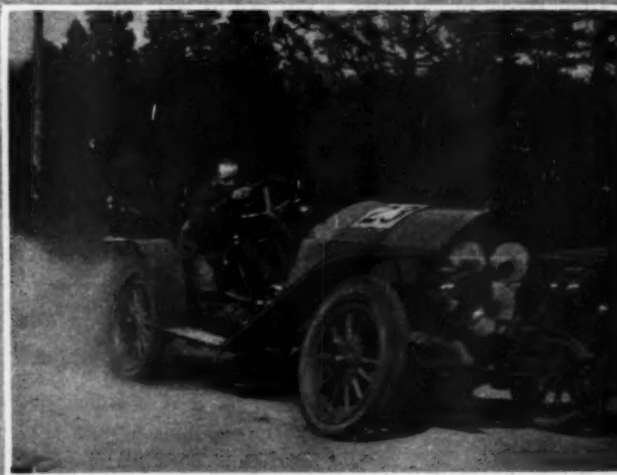
WORCESTER, May 31—Indications point to the most successful high climb in the history of the Worcester Automobile Club, scheduled for Saturday, June 12. The entries are coming in rapidly and are very representative. Permits for the use of the hill have been granted by the Worcester Board of Aldermen and the selectmen of the town of Leicester, the hill being in the two towns. The arrangements for the hill climb have been left with President John P. Coghlin, of the Worcester Automobile Club, and he will select his committees later, they being taken from the various clubs in Massachusetts. Under the rules of the Contest Board of the American Automobile Association, a representative of the board must be present at the climb, and it is probable that Harry W. Knights, of Boston, representative on the board from Massachusetts, will act at the climb.

DIAMOND COMPANY OFFERS CASH PRIZES

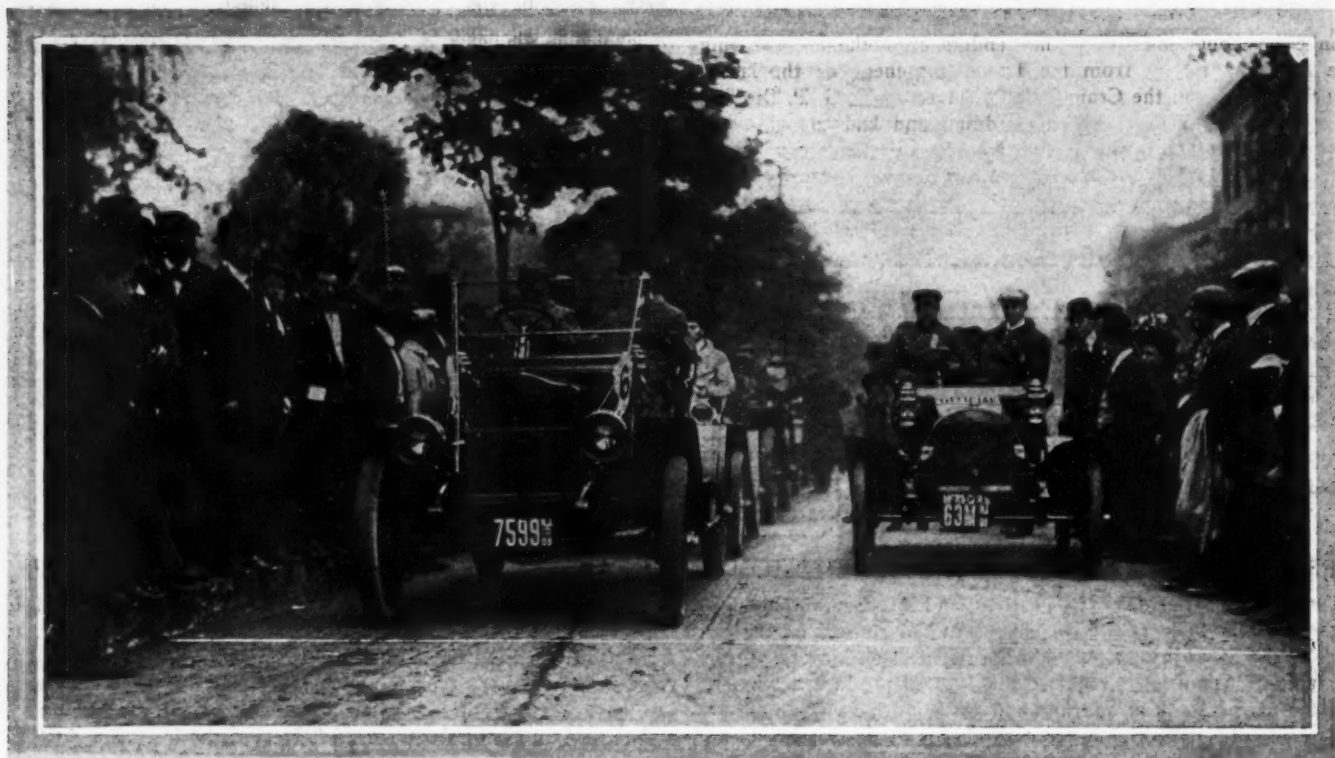
AKRON, O., May 31—Cash prizes for the drivers in the Western stock chassis races, the Cobe and light car trophy events, have been offered by the Diamond Rubber Company of this city. The aggregate is \$2,775, divided as follows: Driver with Diamond equipment who wins first place, \$1,000; second, \$750; third, \$500. For the Indian trophy, light car race: Winner on Diamond equipment, \$300; second, \$150; third, \$75. The Diamond tire camp will be established upon the course a week in advance of the dates of the races, June 18 and 19, and will be in charge of J. D. Tew.



Dennison Driving His Knox in the Free-for-All



Miller, Stoddard-Dayton, Winning in His Class



Line-Up for the Start of the New Jersey Automobile and Motor Club's Endurance Run in Front of Club House

NEW JERSEY'S BIG CLUB GIVES A RUN FOR AMATEURS

NEWARK, N. J., May 31—Weather conditions did not favor the endurance run of the New Jersey Automobile and Motor Club for its non-trade members. Originally scheduled for May 22, it was postponed, because of hard rains, to May 27 and held them in a driving rainstorm. In spite of these handicaps, however, the event was another success in the list of those held by the club, for there were twenty-one starters, of which fifteen finished and thirteen had perfect scores. Three classes divided the contestants, according to horsepower, 20 or less, 20 to 30, and over 30 being the important figures in the case; and in these definite winners were secured in the first two and a three-cornered tie in the last. The rules called for a run of 193 miles in two laps, with the circuit between Newark and Hackettstown. The schedule required an average speed of 19.3 miles an hour, and the cars had to check in at the Newark control within three minutes of their appointed times on each trip. In addition to this it was necessary to keep the wheels moving at all times from Dover to the finish, a distance of 28.1 miles.

In each class it was announced that the car which came nearest to crossing the line exactly upon the second—for seconds were watched carefully—would be declared the winner. There were four trophies: Class A, silver trophy, donated by W. S. Thomas; Class B, silver cup, donated by W. C. Crosby; Class C, silver cup, donated by the Sunday Call; silver trophy for the best Maxwell performer, donated by the Maxwell-Briscoe Motor Company. In addition to these, the club will present to each perfect score driver a loving cup.

H. A. Bonnell captured premier honors by carrying off three of the trophies with his Maxwell tourer, winning Class B and the Crosby cup by having the best score of the three Maxwell entries, securing the Maxwell challenge trophy, and by having a perfect score getting the regular club prize. A two-cylinder Reo, the only car in the contest not of the four-cylinder type, driven by D. J. Holmes, won class A, although penalized 17 points, three of which were for three minutes carbureter attention on the road, and the other 14 for adjusting a spark plug at a two-point-a-minute penalty. This car and the second in the

same class were the only ones to receive demerit marks. The second was a Buick driven by W. F. Hopping, and lost 18 minutes or 36 points on the second lap. Mr. Bonnell was the only one in class B who crossed the tape both times on the second, but such was not the case in class C, where three accomplished the difficult act. These were F. A. Crosel mire in a 40-horsepower Locomobile, F. L. Kramer in a 35-horsepower Jackson and W. C. Crosby in a 50-horsepower Marmon. Of the others who completed the circuits within the three-minute allowance, there was in each case a slight earliness or lateness, 'sometimes not more than a few seconds.

Checking out at 8 o'clock the contestants ran through Springfield, Morristown, Madison, German Valley, over Schooley's Mountain to Hackettstown. Returning the route led through Allamuchy, Dover, Caldwell, Montclair and Bloomfield. The roads were excellent with the exception of a few miles between Hackettstown and Dover, and even there they were not bad, simply muddy and rough. The rain soon made the roads slippery, however, and this was responsible for an accident to a Mitchell roadster driven by D. J. Scott, in which the observer, E. R. Carter, of Tompkinsville, S. I., had his collar bone broken. The car was descending a hill at Allamuchy and skidded over to the right of the road, its right rear wheel hub hit a protruding rock and the impact threw the car over toward the other side. Scott could not regain control in time to keep from hitting a telegraph pole, cutting it in half and throwing out all the occupants. Carter was the only one hurt and a physician was summoned to attend to him. He returned to the city by train. There were but two other exciting incidents, both at the starting line, and only the presence of a fire wagon belonging to the Tea Tray Company prevented a conflagration. In filling up for the second round some gasoline was spilled around Ward's DeDietrich and it caught fire. The flames damaged the rear of Kramer's Jackson and the DeDietrich slightly, but the fire extinguishers made short work of the trouble and both cars went on their way. After checking in at the completion of the run, C. E. Callard's Marmon skidded into two Maxwells, one

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an official car belonging to J. W. Mason and the other Mr. Bonnell's winner, damaging the fenders on both, and shearing the left rear spring from the frame gooseneck of the latter. On the first round the Craig-Toledo, driven by R. G. P. Dieffenbach, threw both rear tires in skidding and had to withdraw. There was a great deal of tire trouble, the Chalmers-Detroit belonging to W. L. Ferguson having five punctures, and he withdrew after finishing one lap.

The officials were: Referee, Paul E. Heller; starter, Mayor Jacob Haussling; committee, J. H. Wood, chairman; F. C. J. Wiss, H. D. Bowman, D. C. Reynolds, A. B. LeMassena, J. L. Adams, Jr.; C. A. Westervelt. The official cars were: Pathfinder, Cadillac, C. E. Fisher; press, Marmon, Rickey Machine Company; committee, two Maxwells, J. W. Mason. The observers were students from the Stevens Polytechnic Institute. The summary follows:

CLASS A CARS, TO AND INCLUDING 20-H.P.

No.	Car.	H.P.	Driver.	Score.
25.	Reo	20	D. J. Holmes	17
11.	Bulck	18	W. F. Hopping	36
7.	Bulck	18	J. J. C. Humbert	Withdrawn
19.	Mitchell	20	D. J. Scott	Withdrawn

CLASS B CARS, 21-H.P. TO AND INCLUDING 30-H.P.

No.	Car.	H.P.	Driver.	Score.
1.	Maxwell	28	H. A. Bonnell	Winner
6.	Maxwell	28	M. R. Sherrerd	Perfect
16.	Maxwell	28	Andrew Heuschkel	Perfect
17.	Autocar	30	M. A. Carpenter	Perfect
24.	Crawford	25	F. G. Goeken	Perfect
14.	Cadillac	30	A. B. Ward	Withdrawn

CLASS C CARS, 31-H.P. AND OVER.

No.	Car.	H.P.	Driver.	Score.
2.	Locomobile	40	F. A. Croseimire	Tied
9.	Jackson	35	F. L. Kramer	Tied
10.	Marmon	50	W. C. Crosby	Tied
3.	Oldsmobile	35	W. H. Cornwell	Perfect
4.	Marmon	50	C. E. Callard	Perfect
8.	DeDietrich	20	R. S. Ward	Perfect
12.	Haynes	50	W. E. Shuttleworth	Perfect
20.	Flat	35	A. N. Elsele	Perfect
5.	Craig-Toledo	40	R. G. P. Dieffenbach	Withdrawn
18.	Chalmers-Detroit	30	W. L. Ferguson	Withdrawn
26.	Flat	35	W. B. Gibson	Withdrawn

BRIGHT PROSPECTS FOR BINGHAMTON RUN

BINGHAMTON, N. Y., May 31—With three weeks still to pass before the start, there are already 21 entries for the fourth annual tour of the Binghamton Automobile Club. It is expected that there will be at least 30 cars, and likely more, to leave this city on the morning of June 21, to be gone until the evening of June 26. The tour will be essentially a pleasure one, for there will be a large number of private owners in the party, but there is enough of the competitive nature about the event to make it worth while to win. The outlook is brighter than ever before, and a number of persons have joined the club simply to be able to take a run which they have always desired to make. The rules are such that the trip will be a sight-seeing one, with a schedule so low and roads so good that easy runs may be made and short stops at particularly interesting points. A noon control will be established each day for lunch and night stops made at Albany, Boston, Hartford, Conn., and Newburgh, N. Y. One entire day will be spent in seeing Boston. The distance to be covered is 761 miles, of which more than 490 is macadam and the remainder good dirt. A pathfinding car will start over the route within a few days, making up the directions and also paying attention to features of the country through which the autoists will pass.

ALBANY HILL CLIMB ABANDONED

ALBANY, N. Y., May 31—It has been decided by the Albany Automobile Club that the climb which it proposed to hold on the Kenwood Hill on June 5 will be abandoned for the present season. According to Secretary Martin lack of entries is the cause, for it had been stipulated that there should be at least three entries to fill each of the 17 events and sufficient had not been received to warrant a carrying out of the affair.



Secretary Bonnell and Triple Prize Winning Maxwell

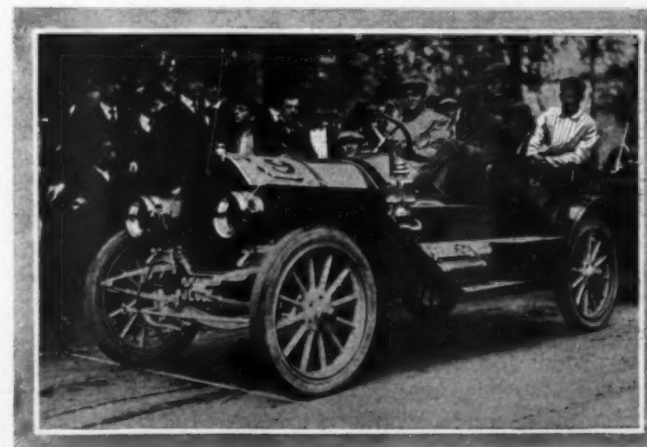
SEALED BONNET CUPS AWARDED AT BALTIMORE

BALTIMORE, May 31—Six cups will be awarded by the Automobile Club of Maryland to the cars that made the best records in the sealed bonnet contest and endurance run under the club's auspices on Saturday, May 15. This decision was reached at a meeting, Friday, of the Contest Committee of the club. The Winton 48-horsepower and Packard 30-horsepower were tied in Class A, each with two points penalty, so that each will receive a cup. Two cups will also be awarded in Class B, the successful cars being the 35-40 horsepower Gaeth and the 45-horsepower Stoddard-Dayton, each with twelve bad marks against them. The 40-horsepower Studebaker finished in this class with a perfect score, but was ineligible for a prize, as it was a racer and non-contestant.

The decision to give the Gaeth car a cup was made after the penalty had been reduced from 45 points to 12 points. The original heavy penalty was given on technical examination because it was claimed that the car's gasoline tank leaked and that it had a broken muffler pipe. Upon closer examination it was discovered that the car's gasoline tank did not leak, but that this apparent condition was in reality due to the slopover from the fill. Secretary Darling, of the Auto Club and a member of the Contest Committee, said that part of the points were also reduced on the Gaeth car because of a lower value to replacement of parts of the muffler pipe.

The 28-horsepower Franklin, with a perfect score, will get the cup in Class C, and the 16-horsepower Hupmobile will be the trophy bearer in Class D.

The arrangement to give separate cups will obviate the necessity of having a run-off. It is likely that the tied contestants will have a chance to get together in the next contest.



Champion Cyclist Kramer Was a Perfect Score Jacksonite



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PREPARATION OF A CAR FOR SPRING USE

In the yearly overhauling of a car, preparatory to its use for the ensuing season, there is too much of a tendency to trust implicitly those who have the work in hand. It is a usual fact that the ordinary owner when he has hired a garage to go over his car does not upon its receipt in supposedly perfect shape examine it thoroughly to see how many nuts were left off, how many cotter pins were omitted, and how many other little parts were not put together absolutely right. Then, too, many who would check up the corner garage in this fashion would not think of overseeing the same work when done by the manufacturer of the car. The reasoning which prompts this is doubtless that the latter has superior facilities for doing the work and a superior set of men to do the putting together.

The latter is fortuitous, for the men employed in the factory are only human, the same as those in the corner garage. For this reason, if for no other, the car just returned from the factory should be carefully and painstakingly gone over from one end to the other, in order to check up all of the little details, none of which would be too small for the owner, but some of which might have been too microscopic for the mechanic on the job.

It is a matter of record that a number of accidents happen each Spring from this cause, and for which there is not a particle of excuse. One case recently heard of

was that of a man who had sent his car to the factory and paid a large sum to have the whole chassis revised and all defects corrected. The car was returned to him as all right, and he immediately took his family out for a ride. After a few hours' riding he was stopped when going at a rather high speed by a man who called his attention to one of the front wheels. Upon close examination this was found to be very loose, so much so that another half mile would have seen it part company with the axle. At the speed the car was traveling this would have been fatal to the occupants. The reason for the wheel being loose was the omission of a cotter pin, in conjunction with which a loose nut was a criminal offense. As it turned out no one was hurt, and the only result was that from now on at least one car owner will look over and check his entire car, whether the garage or the manufacturer does the work of putting it in shape.



ECONOMY RATHER THAN SPEED ALONE

As the automobile increased in power and reliability, its tasks were multiplied for the various tests in which it was asked to participate. Track racing has become almost obsolete for the reason that in this form of competition the driving of high-powered cars transgressed beyond the limits of sanity. While an occasional meet of this character is held, the number now is meager and hardly worth any serious attention.

It begins to look as though a similar state of affairs is shortly to be reached in the matter of speed hill climbs. Usually, ascents are selected, including dangerous stretches, the successful covering of which requires the exercise of the greatest skill on the part of the driver. In many instances, a victory comes only to the driver who exhibits the greatest amount of foolhardiness and luckily escapes without danger to car or harm to self.

Scarcely a roads grade now exists, no matter how precipitous, throughout the country which cannot be climbed by a good car properly geared and driven by a capable operator. Indications are more than marked that the hill climb is an event that will follow in the trail of the discarded track meet, for future competition is certain to trend toward economical operation rather than demonstrating ability to cover a given course in the shortest space of time.



THE VETO OF AN AUTOMOBILE BILL

Unquestionably surprised were many New York State automobilists over the veto of the proposed automobile law by Governor Hughes, who decided at the eleventh hour that the proposed Allds-Hamm measure was not justified even by the necessity of urgent funds for the upkeep of State roads. There is much well worth the reading in the veto of this unusual governor, who perhaps is more of a politician than is generally surmised, for it looks to those who were aware of the progress of events as if this chief executive had even revised his own opinions when he dashed to the ground the hopes of those who expected that he would approve of the new law.

The Governor is both right and wrong in the reasons for his veto, and the automobilist, though he dissents in not a few particulars, will find profitable reading in studying the veto.

HUGHES VETOES PROPOSED NEW YORK LAW

ALBANY, N. Y., May 31—The automobilists of New York State are still pondering over the veto of the Allds-Hamm automobile bill which Governor Hughes last week announced. In a memorandum of considerable length the Governor explained why he had decided to veto the proposed law, stating that even the need of money for the upkeep of State roads did not justify him in approving of a measure which he considered contained enough defects to cause him to withhold his signature.

The New York State Automobile Association and the Automobile Club of America used their best endeavors in securing the passage of the bill in the two branches of the Legislature, and naturally the representatives of these two bodies are inclined to express much astonishment at the unexpected veto, especially in view of the fact that the Governor concerned himself in aiding the passage of the measure by emergency messages when its death seemed imminent through a difference of opinion as to whether the Secretary of States office or the State Highway Commission should handle the registration money.

"The Governor is wrong when he says in his brief that the bill deprives the police authorities of the power to regulate traffic," said Charles Thaddeus Terry, counsel to the American Automobile Association. "It does just the reverse. By remov-

ing the restriction as to the limit of miles per hour, it places in the hands of the police the power to determine whether or not an automobile is being driven in a careless or negligent manner, no matter how fast it is going. It may be going six miles an hour on Broadway and the speed be reckless. It all depends on the surroundings.

"I think the Governor laid too much stress on the opinion of Mayor McClellan that the traffic regulations of the city would be interfered with. The Mayor's fears were groundless. They were gathered from a superficial examination of the provisions of the bill by the city authorities. Caution will become the universal test of speed. It is the law now in Connecticut, Massachusetts, Vermont and Pennsylvania, and will be so in every State."

"The veto is unfortunate," said W. W. Niles, counsel to the Automobile Association of America. "The bill, if it became a law, would have resulted in more stringent traffic regulations so far as automobiles are concerned. It would have given the police greater supervision. I think the Governor's view is wrong."

Herewith will be found the full text of the Governor's announcement of his disapproval of the measure:

STATE OF NEW YORK, EXECUTIVE CHAMBER,

Albany, May 26, 1909.

Memorandum filed with Assembly Bill No. 2,413, entitled "An act to amend the highway law, by repealing Article 11 thereof and inserting a new Article 11, in relation to motor vehicles.

NOT APPROVED.

The study of this measure has convinced me that it would be unwise to enact it into law. It is true that it provides for an increase of the State's revenues, and in view of the amounts we are expending in the improvement of our highways and of the difficulties of maintenance under new uses, the revenue provisions of the bill are important.

But the subject of paramount consideration at this time is protection to life and limb. We are passing through a period of adjustment when the natural hostility of many to new highway conditions is increased by abuse of privilege, and others are chafing under what they regard as vexatious restraints and unjust exactions. Nothing can be more certain than that the use of motor vehicles will largely increase, that the number of accidents will diminish, and that usage and common sense will largely do away with present evils. During this transition period, however, there should be the utmost care in legislation so that matters should not be made worse instead of better. There are many good provisions in this bill, and it has been strongly urged that it should have a trial. But it seems to me better to wait and to secure an improved bill, than to enact a measure as defective as this one appears to be.

The present law provides specific speed limitations of 10 miles an hour where the territory is closely built up, 15 miles an hour elsewhere in a city or village, and 20 miles an hour elsewhere outside of a city or village. In addition, the present law also provides for a reasonable rate of speed in all cases—that is, that no one shall operate a motor vehicle on a public highway "at a rate of speed greater than is reasonable and proper, having regard to the traffic and use of the highway, or so as to endanger the life or limb of any person, or the safety of any property."

This bill abolishes the specific speed limitations, and with certain changes in phraseology with regard to the duty of care, proposes as the sole requirement as to speed, the following:

"Sec. 287. Speed permitted.—Every person operating a motor vehicle on the public highways of this State shall drive the same in a careful and prudent manner and at a rate of speed so as not to endanger the property of another or the life or limb of any person; provided that a rate of speed in excess of 30 miles an hour shall be presumptive evidence of reckless driving."

There is much force in the suggestion that requirements of due care cannot be accurately reflected in arbitrary speed limits. But it must also be remembered that in this field as in others a large number of injuries must inevitably be due to mere accident where negligence cannot be satisfactorily proved. It is public policy in dealing with these matters not simply to see that negligent persons are held to account, but also by reasonable regulation, to diminish the risks of preventable injury. This is sought to be accomplished

by speed restrictions. And it is still an open question whether at this stage in our progress toward the wider use of these vehicles of pleasure and convenience, it is safe to rely simply upon a requirement of care and prudence with all the difficulties that attend actual proof of want of care.

It is certain, however, that whatever may be said as to the wisdom of such a rule with regard to the open country, or in sparsely settled towns, we should not deprive our large cities of the right to make reasonable traffic regulations to insure the safety and convenience of the public.

About one-half of the population of this State is within the City of New York, and the Mayor of that city has sent me a vigorous protest against the provisions of this bill. And whatever else may be said of it, it should not become a law if it takes away from the authorities of New York City that reasonable traffic control without which conditions in the metropolis would be intolerable.

The present motor vehicle law took effect on May 3, 1904. It is true that it prohibited, with certain exceptions, the making of local ordinances. But the next year, 1905, the Legislature amended the Greater New York charter so as to give the police department the right to "regulate, direct, control, restrict and direct the movement of all teams, horses, carts, wagons, automobiles and all other vehicles in streets, bridges, squares, parks and public places for the facilitation of traffic and the convenience of the public as well as the proper protection of human life and health," and to that end authorized the Police Commissioner to make "such rules and regulations for the conduct of vehicular traffic in the use of the public streets, squares and avenues as he may deem necessary." Any prior provisions of law inconsistent with this authority were repealed.

The present bill takes away from the local authorities the power "to pass, enforce or maintain any ordinance, rule or regulation . . . excluding any such owner or chauffeur from the free use of such public highways or in any other way respecting motor vehicles or their speed upon or use of the public highways." It expressly provides that any ordinance, rule or regulation "now in force or hereafter enacted" which is "in any wise inconsistent" with the provisions of the act shall have no effect. The only exceptions are the powers (1) to regulate vehicles offered to the public for hire, (2) to regulate processions, assemblages or parades in the streets or public places, (3) to set aside a specified public highway for speed contests or races, and (4) to exclude motor vehicles from cemeteries.

In short, it would practically abolish municipal traffic regulations as to private motor cars. Any one acquainted with conditions in New York City knows how much of the public convenience and safety is due to the maintenance of proper traffic regulations and must recognize the impropriety of making such regulations impossible in the interest of the free passage of motor cars.

It would also appear that under this bill there would be no power vested in the local authorities to exclude motor trucks or motor vehicles used for commercial purposes from the parks of the city, which are included in the "public highways" as defined in

the bill. It would deprive the local authorities of any power they now possess for this purpose.

These defects are grave enough to compel the disapproval of this bill.

But, it may be added, with regard to the general application of the bill, that the abolition of specific speed limitations and the substitution merely of the rule of due care should carry with it stringent penalties in case of negligent driving. It would seem that the penalties for actually proved negligence should be heavier than those imposed for merely exceeding an arbitrary speed limit.

The penalties provided for in this bill, with respect to violations of speed requirements, are less stringent than those of the present law.

A comparison shows the following results:

For a first offense: Under the present law, a fine not exceeding \$100; under the proposed law, a fine not exceeding \$50.

For a second offense: Under the present law, a fine not less than \$50 nor more than \$100, or imprisonment not exceeding 30 days, or both; under the proposed law, a fine not exceeding \$50, or imprisonment for not exceeding 30 days, or both.

For a third or subsequent offense: Under the present law, a fine of not less than \$100 nor more than \$250, and imprisonment not exceeding 30 days; under the proposed law, a fine of not exceeding \$50 and imprisonment not exceeding 30 days.

It is true that the provisions of the proposed law for maintaining records and distributing information of prior convictions are very useful. But these advantages are more than offset by the inadequacy of other provisions.

The deterrent feature, which is relied upon to secure obedience to the law, is the requirement of an actual imprisonment upon conviction for a third offense. And the importance of maintaining

records of prior convictions is to pave the way for this punishment of the confirmed violator of the law. But the present bill limits the amount of bail which may be taken to \$100. It provides that where the magistrate is without jurisdiction to try the offense, and the defendant "charged with the violation of any provision" of the act is held to answer, the magistrate must admit the defendant to bail upon his giving a surety company bond, or an undertaking, in the sum of \$100, or upon his deposit of a like amount in cash. If records were maintained so that imprisonment were the inevitable consequence of conviction for a third or subsequent offense, such bail in many cases might be wholly inadequate.

It is apparent that careful drivers of motor cars, who have no desire to violate the law, are now held within what they believe to be unjust restrictions and are frequently made the victims of an abuse of legal process. But the remedy for any existing injustice must carry with it appropriate safeguards, and the more that is left to the judgment of the driver, the more important it is that recklessness should be heavily penalized.

The bill contains restrictions upon the use of cars without the consent of their owners, a frequent source of accident. But such a restriction is also contained in a separate bill amending the penal law, and will not be lost by the disapproval of this bill. It would also seem advisable that better means should be provided, with respect to the issuing of licenses, for ensuring the competency of chauffeurs. One of the imperfections of this bill is that the useful provision for the suspension of licenses does not apply to violation of the requirements as to safe speed.

In view of these considerations, other objections to the bill need not be discussed. The bill is disapproved.

(Signed) CHARLES E. HUGHES.

PENNSYLVANIA NEW LAW IN EFFECT EXCEPT LICENSING!

PHILADELPHIA, May 31—That section of the recently enacted Townsend automobile law which continues the method of licensing resident automobilists prescribed by the 1905 act until December 31 next, when it will be superseded by that prescribed in the new law, has bothered all concerned not a little. A careful reading of the new law will show that Section 25 applies only to licensing, and was inserted to save automobilists from the necessity of "coming up double." The remainder of the law went into effect as soon as the Governor attached his signature to the bill.

Even the police officials seemed to be a little hazy in the matter, and a few days ago Wesley Burdett and E. A. Strong, local automobilists, were held by Magistrate Scott until he could

look into the law. They had been apprehended by Motorcycle Policeman Morley, in Chestnut Hill, a suburban section. The "cop" swore they were going at twenty-three miles an hour.

Attorney G. Douglass Bartlett, the Quaker City Motor Club's legal sharp, was put on the job, and when the case came up he asked for the immediate discharge of his clients on the ground that they had broken no law. Bartlett quoted the new law and showed where the policeman had been working under the 1905 law, which had been superseded by that of 1909. After examining the law the magistrate agreed with Mr. Bartlett and discharged the prisoners. The local "cops" are now hard at work amending their painfully acquired arithmetic to meet the demands of the new law.

MORA TALKS FOR FEDERAL LAW

"Automobile regulations may come and go," says S. H. Mora, treasurer of the American Motor Car Manufacturers' Association, "but as the touring season is renewed each year the fact is strongly thrust upon us that no automobile law will ever be satisfactory and just until a national Federal bill is enacted, making one registration number good in all States.

"It is unquestionably unfair that automobilists in the use of the interstate highways should be obliged to submit to the diverse State regulations as to registration and identification when such State requirements result in the imposition of as many different taxes as there are States to pass through.

"Under the present automobile regulations there is a necessity sometimes of procuring new numbers for the car and in some cases adding these numbers to those already in place; in other cases removing all those except the registration number of the particular State through which the tourist is passing at the time; in some States carrying one number, in others two numbers; in some States painting the number on the machine, and in others attaching it to front or rear, or both.

"There is not any question but there should be some system of identification which shall be uniform and at the same time effective. The varying requirements which are now enforced in the various States throughout the country defeat the very object of the State statutes, inasmuch as they result in increased confusion instead of clear identification."

AUTOISTS' METHOD OF WINNING JUDGES

CLEVELAND, May 31—There is a good story on a prominent Cleveland judge going the rounds in this city and its lesson may aid other clubs in winning over members of the judiciary to the side of the automobilists. This judge was recently caught by one of the automobile club members, speeding down Euclid Avenue and was duly reported at the club office. A courteous letter was sent him, stating that he was "violating the laws of Ohio" and requesting that he curb his desire for speeding. Within twenty minutes after the receipt of the communication the bench member appeared at the club rooms with profuse apologies to Secretary Forbes, thanked him for calling his attention to the matter, joined the club and carried away ten application blanks for his friends. "Pinching" judges in this manner is an effective way of bringing to their attention the fact that automobile clubs are doing much to gain respect for the laws.

IS THIS MICHIGAN ORDINANCE A JOKE?

MARSHALL, MICH., May 31—This town of 4,361 inhabitants will probably have an automobile ordinance that will make its watchful residents wealthy at the expense of automobilists. The "city" attorney is compounding a statute which will provide a fine of \$100 for automobile drivers who send their cars over the streets at a rate of more than eight miles an hour, and the informer will receive one-half of the money.

What the Clubs Are Doing These Days

QUAKER CITY'S ARE ON THE INCREASE

PHILADELPHIA, May 24—Twenty-two new members were added to the club's total at last week's meeting of the board of governors of the Quaker City Motor Club, and the officials are now realizing that before many months a waiting list will have to be started. The 200-mile stock chassis race in Fairmount Park next October came up for discussion, and it was decided to limit entries to American-built cars only. The resignation of Max R. Green from the board having left a vacancy, Joseph Keir was appointed in his place, he having polled the greatest number of votes of the candidates who failed of election at the annual meeting. Chairman Bartlett, of the law and ordinance committee, reported that the codification of the new Pennsylvania and New Jersey automobile laws was in the hands of the printer and would be ready for distribution to the members in a few days.

The report of the club's official scout, "Doc" Overpeck, was also read, and the itinerary of the five-day endurance run to Pittsburg and return, June 14-18 next, as decided upon by the pathfinding party, indorsed and ordered to be made public. It shows a total mileage of 750.5 miles for the round trip—412.2 going and 338.3 returning—with overnight stops at Williamsport, Johnstown, Pittsburg, and Lewistown. Quite a number of entries have already been received for the four classes—A, touring cars listed at over \$2,000; B, touring cars, \$2,000 or less; C, runabouts, over \$2,000; D, runabouts, \$2,000 or less.

The club is preparing, as usual, to be well represented at the Wilkes-Barre climb on May 31, fully a score of members having signified their intention of making a three-day trip of it, starting Saturday noon, and reaching home at the same hour Tuesday.

SPRINGFIELD (O.) CLUB ELECTS OFFICERS

SPRINGFIELD, O., May 24—Co-operation with the State automobile department and the good roads work were subjects of interest at the annual meeting of the Springfield Automobile Club held on Thursday evening. The election of officers resulted as follows: President, Frank R. Packham; vice-president, P. E. Montanus; secretary and treasurer, George E. Mentel. These with Benjamin P. Johnson and George R. Prout constitute the board of governors. M. M. Maxwell, secretary of the good roads commission, outlined the work to be attempted by his board with the aid of the automobile clubs and various other associations. The State automobile department was represented by its superintendent, Fred H. Caley, who gave a talk on the work of the department.

COLUMBUS WILL ENTERTAIN ORPHANS

COLUMBUS, O., May 29—The first week in June, set by the A. A. A. for National Orphan's Day, was not convenient to the Columbus Automobile Club, so the date was fixed at June 19. On this day it is expected that 1,800 children rounded up by the Salvation Army and the Volunteers of America will take advantage of the club's hospitality, this number being in excess of last year by 200. More than 200 autoists have pledged themselves or their cars so that success is assured. The start will be made from Broad and High streets early in the morning, the exact hour being set at eight.

BARTHOLOMEW NOW HEADS KENTON CLUB

COLUMBUS, O., May 17—One of the most energetic of the smaller clubs in Ohio is that of Kenton. The annual meeting has just been held and as a result W. E. Bartholomew is now at the helm as president. He is one of the most extensive onion growers in the country and is an enthusiastic automobilist.

TROY CLUB STARTS MEMBERSHIP CAMPAIGN

TROY, N. Y., May 31—It has been estimated that there are about 270 automobile owners in this city, and the Troy Automobile Club has set about to enlist every one of them. This organization, which was formed in 1904 and re-organized in 1908, has about 50 members at present and is active in its work for the improvement of conditions in this locality towards the autoists. At present a set of street regulations are being compiled and it is believed that they will be adopted by the police department. These give definite rules for all vehicles, as to turning; keeping to the right, stopping, etc., much similar to those recently put in force with success in Albany. Orphans' Day will be celebrated on June 2, taking the children to Rensselaer Park for an afternoon, after a parade through the city.

The officers of the club are: President, F. B. Twining; vice-president, E. S. Platt; secretary-treasurer, Alonzo McConihe; board of governors, LeG. C. Cramer, H. S. Ide, John McGlynn, J. J. Murphy, R. C. Reynolds, J. J. Smith, John Squires, Dr. L. R. Whitney, and the other officers.

HARTFORD CLUB IS IN A FIX

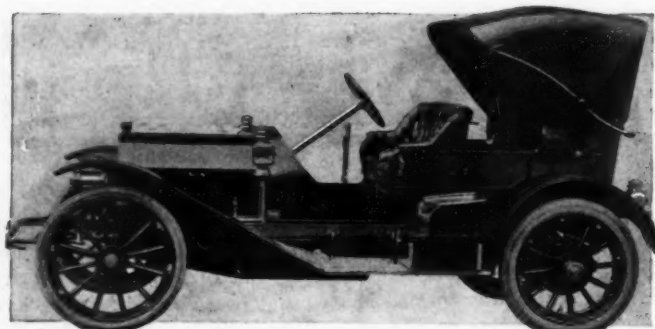
HARTFORD, CONN., May 29—Aside from awarding the Maxwell Junior and the Renault a cup each for winning in their respective classes in the recent reliability run, the Contest Committee of the Automobile Club of Hartford is rather up against it. It was proposed that the class trophies be melted up and medals made from the material; then it was suggested that the lucky ones to finish with clean scores draw lots, the winner to take the cup, but this was regarded as a rather unsatisfactory scheme. In all probability cups for classes with several perfect scores will be redeemed and the equivalent in money expended for suitable medals, all of which will be the same. It is rather a coincidence that the best drivers in the run numbered among those who stalled motors. The clean score of the Interstate car has been questioned. On the last lap Mills, the driver, claims he turned his car into the ditch to prevent a collision, thereby damaging the oiling system. This he repaired and the referee awarded him a clean score.

ITHACA CLUB MAKES A GOOD BEGINNING

ITHACA, N. Y., May 29—By holding a very successful banquet and smoker at the Dutch Kitchen, the recently organized Automobile Club showed some signs of life and made a noise like a good beginning. Toastmaster J. M. Clapp presided and brief addresses were made by President Thomas W. Mone, Daniel Rothschild, C. S. Ricker, James A. Causer and others. One fact dwelt upon was that the Ithaca club, while the youngest in the State, has already discounted many of the older organizations in point of membership. The charter officers are, besides the president: Vice-president, Daniel Rothschild; treasurer, E. N. Jackson; secretary, J. A. Causer. These officers, together with R. A. Heggie, D. E. Marsh and C. W. Fletcher, constitute the board of governors.

OGDENSBURG AUTOISTS FORM CLUB

OGDENSBURG, N. Y., May 24—Automobile owners of this city have formed a temporary organization looking to the establishing of an automobile club, and at a recent meeting the following officers were elected: President, Walter G. Kellogg; vice-president, Charles D. Randles; secretary, Thomas H. Lawrence; treasurer, Dr. A. E. Haynen; governors, George R. Malby, Edgar A. Newell, George F. Darrow. There are 51 automobiles in the city, exclusive of those owned by garages.



Latest Production of the Moon Motor Car Company

The above photograph just received from the St. Louis factory is of Model C, a new Moon car with baby tonneau, equipped with a Victoria top. In keeping with the others of the Moon line, it is attractive in appearance and will undoubtedly prove a ready seller.

PALACE SHOW TO OPEN NEW YEAR'S EVE

Opening the Grand Central Palace Show of the American Motor Car Manufacturers' Association on New Year's Eve proved so successful last Winter that the show committee, of which R. E. Olds is chairman, has decided definitely on that date as the time for the opening of the "Decennial Show" of 1910. There will be the usual private view in the afternoon of Friday, December 31, 1909, with the formal opening at 8 o'clock on New Year's Eve, after which the show will continue until the following Friday night.

There will be some changes in Grand Central Palace which are expected to supply additional space to care for those exhibitors who could not be provided for at the ninth affair, and it is believed that the Tenth International, or what will be known as "The Decennial Show," will surpass in attendance and sales even the record-breaking affair of last Winter.

BROOKLYN SCIENTISTS LISTEN TO EXPERTS

Automobiles considered from the standpoints of economy, technique and sport were the subject of a series of illustrated lectures before the Brooklyn Institute of Arts and Sciences, at the Academy of Music in that city, on the evening of May 27. The speakers were Herman F. Cuntz, M. E., of the A. L. A. M., who spoke of the economical progress made in the industry; Alexander Churchward, secretary of the Society of Automobile Engineers, who treated the subject from the technical standpoint, and Orel A. Parker, of the Automobile Club of America, who spoke on the subject of the sport in its various phases. The attendance was large and much interest was manifested.

POPE REDEEMS NOTES AHEAD OF TIME

HARTFORD, CONN., May 29—As an evident hallmark of prosperity, it was announced to-day that the Pope Manufacturing Company, of this city, has issued a notice to noteholders that the rest of the outstanding paper will be taken up on July 1. These are the first and second issues, the third having been redeemed on January 1 last, two years and five months before maturity. A similar policy of early redemption has been pursued with the others, and they will be paid thirteen months and one month, respectively, before due. The resumption of the immense Pope business of several years ago has made this possible.

ELECTRIC VEHICLE CO. MAY LOSE RECEIVER

HARTFORD, CONN., May 29—Business has been so good lately that it is now stated on good authority that the complete reorganization of the E. V. Company will soon take place. Nearly all of the claims have been settled and the controlling interests will be able to start with a clean slate. The local interests welcome the good news and hope to see the deal consummated early.

THE DINNER TO CARLTON R. MABLEY

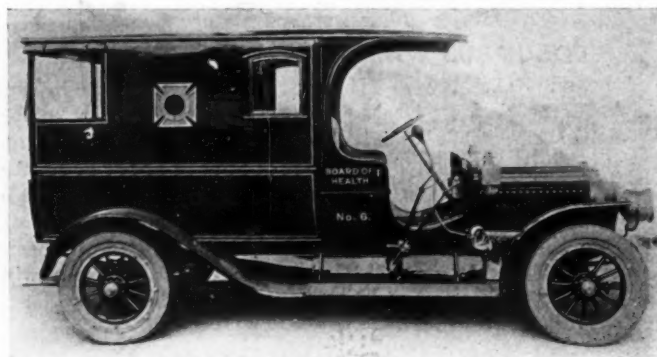
One of the real veterans of the automobile trade, Carlton R. Mabley, was the guest of honor at the dinner of the Fairweather Club, held at Reisenweber's, New York City, Wednesday evening, May 26. H. L. Humphries, of the automobile department of the New York *Evening Post*, was responsible for the successful recognition of Mr. Mabley as one of the prominent early factors in blazing the auto trail in the metropolis. The firm of Smith & Mabley had an international reputation, due principally to the efforts of the guest of the occasion, who accepted the encomiums thrown at him from all directions with characteristic modesty.

Peter Fogarty, as toastmaster, contributed Milesian wit in his introductory remarks for the various speakers. The list included H. L. Bridgman, hero of Arctic explorations, and C. F. Wyckoff, who accompanied him on one occasion; Creswell McLaughlin, the well-known "Schoolmaster of Cornwall-on-the-Hudson"; Winthrop S. Scarritt, well supplied with word pyrotechnics; Herman F. Cuntz, with an interesting story on roads building; Henry M. Duncan, whose rhythmic conversation flowed easily, and A. G. Batchelder.

The notables present included W. W. Burke, president of the Fairweather Club; Alfred Reeves, Coker F. Clarkson, Harry Fosdick, Louis R. Smith, W. T. Berrien, E. S. Partridge, A. J. Pickard, J. H. Gerrie, James C. Nichols, C. L. Simmond, H. T. Adams, C. W. Wurster, J. M. Lansden, William and Harry Knipper, L. C. Van Bever, E. H. Kidder, George S. Simpson, N. E. Neswood and M. J. Sullivan. Many absentees sent regrets, and their letters and a few marconigrams were read.

NEW TRUCK COMPANY GETS GOOD START

WORCESTER, MASS., May 29—A charter has just been granted to the R. L. Morgan Company, of this city, to manufacture motor trucks. Realizing the immense field which is only beginning to open up for motor-driven trucks, this company will start right in to build a good machine and build them in large numbers. About seventy-five men will constitute the working force at the start, which will be made in the large three-story brick building formerly occupied by the Crompton-Thayer loom works. Beginning with a large number of orders on hand, the production will be rapidly increased until the yearly production reaches 500. Back of the new enterprise are such sterling men as Ralph L. Morgan, the designer of the truck; Henry E. Whitcomb, director of the Merchants' National Bank; F. B. Durfee, treasurer of a local building company, and others. Mr. Morgan will be president, Mr. Whitcomb treasurer and manager, while Mr. Durfee will act as vice-president. The shop will be under John R. Back, with the F. E. Reed Company for thirty years.



Maxwell Ambulance Built for City of Newark

The photograph shows the new ambulance delivered to the City of Newark, N. J., by the Maxwell-Briscoe Motor Company. The wheelbase is 126 inches, and the body is seven feet in length, three feet wide, and the furnishings include stretcher, medicine chest, speaking tubes, and side seats which fold up when not in use. The inside of the vehicle is padded and electric lights are arranged for the convenience of the surgeon.



Stearns Cars Carrying Crippled Orphans to Coney Island

The line-up of twenty-five Stearns machines in front of the Crescent Athletic Club House, Brooklyn, where the crippled children from the Free Industrial School of New York were taken for lunch just previous to the pleasure trip to Coney Island.

New Factory for Rutenber Engine Makers—The Western Motor Company, of Logansport, Ind., is building an additional factory at Marion, Ind., which, with the present one, will be supplied with castings from the foundries in Logansport. The new structure will be built of reinforced concrete, two stories high, 450 feet long and 66 feet wide. Machine shops will occupy the second floor, and assembling rooms, testing department and offices will be located upon the first. The 60,000 square feet of floor space thus obtained will be devoted entirely to the manufacture of gasoline motors of the Rutenber four-cylinder type and will materially increase the output of the company. It will be ready to start operations early in September.

Ferro Engines Outgrow Big Plant—Finding that an output of thirty engines a day is insufficient to fill orders, the Ferro Machine & Foundry Company has been obliged to add to its immense factory in Cleveland, claimed to be already the largest marine engine plant in the world. A three-story machine shop is now being erected, covering an area of 140 by 160 feet, and will be one of the most completely equipped in the country. Latest modern machinery and tools will be installed, including individual electric drives. A dining-room 40 by 140 feet in size is being built for the use of the employees, and a basement 80 by 140 feet will be fitted up as a store.

Velie Increases Factory—Operations have been commenced by the Velie Motor Vehicle Company, of Moline, Ill., upon addition to its factory. The new structure will measure 80 by 220 feet in size, with four stories and a basement, of reinforced concrete, and will cost about \$100,000. Another story will also be added to the present plant, so that the whole will harmonize, for the new section will form a wing of the old one. An output of ten cars a day is now that of the factory, employing over one hundred men, and it is stated that orders are being received faster than filled.

Republic Tire Output Increased—Staggard tread tires, made by the Re-

public Rubber Company, in Youngstown, O., have been in such great demand of late, according to the company officials, that the force has had to be doubled and a large night shift employed in order to supply the demand. The Staggard tread has become a feature of the Republic output, for the rubber protuberances act as skidding preventatives, while at the same time are large enough to make the tire good in dry weather also.

Bids Asked for Autos to Carry Mail—So successful has been the test of automobiles in New York mail service that Postmaster Morgan has asked that the service be increased, and the Government has asked for bids for automobiles. These will be received by the Postoffice Department in Washington, and are to cover a period from July 1, 1909, to June 30, 1913. Lines are expected to be established in the uptown districts to carry mail to stations which have pneumatic tube connection with Grand Central and the general postoffice.

Fisks on Winners at Yale Hill Climb—Fisk tires and Fisk removable rims scored in the recent hill climb of the Yale Automobile Club, on the Shingle hill at New Haven, Conn. The Knox cars, which were driven by William Bourque and Albert Dennison, carried Fisk equipment and they made the fastest time of any American cars and won in their classes.

IN AND ABOUT THE AGENCIES

Interstate, Chicago—The Interstate Motor Car Company, which has filed papers for its incorporation, will handle the product of the Interstate Automobile Company, of Muncie, Ind., in the Windy City. Temporary quarters have been engaged by E. C. Lester, who is in charge, at 1328 Michigan avenue, but a long-term lease has been closed for property at 2425 Michigan avenue, and as soon as this is cleared a three-story building will be erected. The move of the Interstate to that section of automobile row, south of Sixteenth street, will take it into the proximity of the new homes of

the Locomobile, Stearns, Premier, Packard and others. The building will be 161 feet deep and 25 wide, with the front for use as a salesroom, while the rear will be for a garage, and additional salesrooms and offices will be placed upon the second floor. The third will be used for equipment and shop departments.

Hoyt Electrical Instrument Works, New York—Additional space has been found necessary by the New York office of the Hoyt Electrical Instrument Works, of Penacook, N. H., and it will be moved on June 1 from 1931 Broadway to 136 Liberty street.

RECENT BUSINESS CHANGES

American Oil Engine Company May Move—It is believed in Poughkeepsie, N. Y., that the Adriance building on North Water street will be taken over by the American Oil Engine Company, now located in Connecticut. The negotiations are being made through the Chamber of Commerce. The concern manufactures stationary, marine and automobile engines in which kerosene is used as fuel.

Automobile Maintenance Company Changes Name—The Automobile Maintenance Company of Chicago has changed its name to the Automobile Maintenance and Manufacturing Company, with a capital of \$25,000.

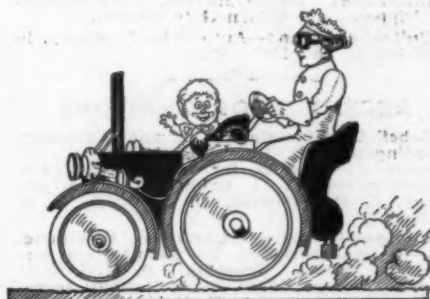
Homer Auto Truck Company Changes Name—The Homer Auto Truck Company of Lansing, Mich., announces the change of its name to the Homer Gas Engine Company, with a capital stock of \$25,000.

CAMERON CO. CONSOLIDATION

BEVERLY, MASS., June 1—The Cameron Motor Company, organized last fall with New York capital to control the output of Cameron cars from the factories at Beverly, Mass., and New London, Conn., has been absorbed by the old company. The capital of the Cameron Car Co. of Beverly, Mass., has been increased to \$500,000 and the affairs of the enlarged organization will be handled by E. S. Cameron, general manager; W. T. Marsh, treasurer, and H. W. Doherty, sales manager.

All four-cylinder models will be built in the Beverly plant; the sixes in New London; and by the acquisition of W. T. Marsh, who is the controlling factor in the American Motor Co. of Brockton, Mass., manufacturers of motorcycles, Cameron gains the assistance of a third plant, where larger quantities of smaller parts will be manufactured.

Arrangements are being completed for an output of 5,000 cars between September 1, 1909, and July 1, 1910.



If we must have lady chauffeurs, what's the matter with this?—From "The Auto Era," published by the Winton Motor Carriage Company, Cleveland, O.

PERSONAL TRADE MENTION

E. Mack Morris has accepted a position as general manager of the Model Automobile Company, of Peru, Ind., manufacturers of Great Western cars. Mr. Morris has been connected with the sales force of the E-M-F Company until recently, and previous to the formation of that concern was assistant secretary of the Northern Motor Car Company. As



E. Mack Morris

general manager of the Model Company he contemplates the building of 1,500 cars during the coming season. Mr. Morris succeeds E. A. Myers, who is general manager of the gas engine works and who found his double duties too great to give both proper attention.

F. H. Fowler, well known in New England automobile sales circles, has joined the forces of the Siro Carburetor Manufacturing Company, of Springfield, Mass., as general salesman.

Alexander Schwalbach has joined the forces of the J. S. Bretz Company of New York, as advertising manager. Mr. Schwalbach until recently has been associated with W. J. Morgan.

W. G. Jennings has been appointed manager of the Detroit branch of the Diamond Rubber Company, located at 265 Jefferson avenue.

TAXICABS AND TRANSIT

Savannah, Ga.—The Savannah Taxicab Company has been organized and incorporated with a capital of \$50,000 to operate taxicabs in this city. The first shipment will consist of fifty cabs, and this number will later be increased by another fifty, the first being scheduled to arrive within a couple of weeks.

NEW AGENCIES ESTABLISHED

Frayer-Miller: Cleveland—Auto Truck Sales Company, distributing to 17 adjacent counties, 225-227 Williamson building.

Royal Tourist: Houston, Tex.—Palace Automobile Company, Louisiana and Rusk streets.

Autocar: Chicago—Louis Gayler Company, 1532-4 Michigan avenue, with the Stevens-Duryea.

Interstate: San Francisco, Cal.—Burkett & Crippens, 550 Golden Gate avenue.

Unito: Cleveland—Auto Sales Company, in addition to the Hupmobile.

RECENT INCORPORATIONS

Cabell-Lincoln Rapid Transit Company, Huntington, W. Va.—Capital \$10,000. To operate automobiles for transfer purposes. Incorporators: S. G. Griffith, L. H. Cammack, S. H. Bowman, H. S. Bryer, J. T. Calbert.

Automobile Wheel Company, Richmond, Va.—Capital \$500,000. To manufacture automobile wheels. President, R. McC. Bullington; vice-president, D. A. Bottom; secretary and treasurer, A. E. Holdt.

Eastern Pneumatic Tire Company, Boston.—Capital \$25,000. To deal in pneumatic tires. President, A. R. Ellis; vice-president,

H. N. Atwood; treasurer, John McLay; clerk and attorney, R. F. Wight.

Newcomb Engine Company, Harrison, N. Y.—Capital \$200,000. To manufacture motors, automobiles, engines, motor boats, etc. Incorporators: W. B. Thompson, O. A. Hack, E. C. Chamberlain.

Buckeye Machine Company, Dayton, O.—Capital \$10,000. To deal in automobiles, athletic goods, etc. Incorporators: M. C. Gath, P. D. Gath, E. L. Kincaid, W. V. Crowe, N. G. McCartney.

Atlantic Automobile Company, Atlantic City, N. J.—Capital \$25,000. General automobile and garage business. Incorporators: C. E. Schroeder, G. W. Meredith, F. A. Broadhead.

Cooke, Fitz & Dillingham Company, Portland, Me.—Capital \$25,000. To manufacture and sell automobiles. President, C. E. Eaton; treasurer, T. L. Croteau; clerk, J. E. Manter.

Auto-Tri Manufacturing Company, Buffalo.—Capital \$200,000. To manufacture, repair, rent and sell automobiles. Incorporators: G. R. Bidwell, W. S. Bull, W. M. Bowen.

Oeson Automobile Company, New York.—Capital \$10,000. To manufacture automobiles, parts and accessories. Incorporators: H. M. Kilborn, W. E. Matterson, Richard Sutro.

Fulton-Zinke Company, Chicago—Capital, \$50,000. Manufacturers' agents for automobiles and accessories. Incorporators: A. W. McGovern, F. C. Rathje, H. C. Calhoun.

Plainfield Auto Sales Company, Plainfield, N. J.—Capital \$25,000. To deal in automobiles and supplies. Incorporators: Dr. S. A. Aldrich, C. C. Brown, C. C. Rocap.

Touring Club of America, Hackensack, N. J.—Capital \$10,000. To publish information for automobilists. Incorporators: G. L. Burlew, A. L. Westgard, R. S. Finney.

Economy Motor Buggy Company, Joliet, Ill.—Capital \$60,000. To manufacture and deal in automobiles. Incorporators: J. F. Beuret, H. L. Thompson, J. C. Flowers.

Rutherford Transit Company, Rutherford, N. J.—Capital \$20,000. To operate an auto stage line. Incorporators: William Black, C. R. Soley, J. M. Bell.

Rae Electric Vehicle Company, New York City—Capital \$150,000. To manufacture and deal in motor vehicles of all kinds. Delaware corporation.

Yonkers Auto Station, Elmsford, N. Y.—Capital \$10,000. To maintain a garage. Incorporators: A. S. Thomson, David Scotland, F. T. Lewis.

Phineas Jones & Company, Newark, N. J.—Capital \$100,000. To manufacture wheels, hubs, and tires. Incorporators: H. P. Jones, P. Jones.

Lowell Taxicab Company, Lowell, Mass.—Capital \$10,000. To do a general automobile business. Incorporators: F. E. Haines, F. B. Emerson.

Polk-McKinney Automobile Company, Little Rock, Ark.—Capital \$10,000. Incorporators: Eugene Polk, Roy McKinney, Roy W. Martin.

No-Shaming Company, Cleveland.—Capital \$10,000. To deal in automobile supplies and specialties. Incorporators: L. Daniel and others.

Terre Haute Automobile Company, Terre Haute, Ind.—Capital increased from \$10,000 to \$30,000. President, Fred B. Smith.

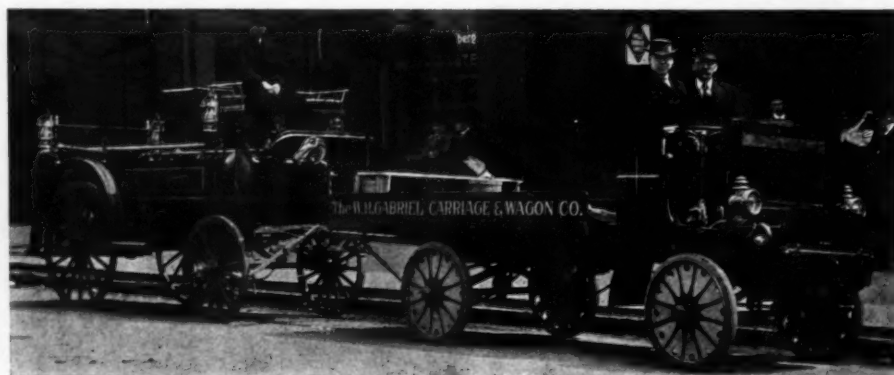
RECENT PUBLICATIONS

Ross Gear & Tool Company, Lafayette, Ind.—Steering gears for touring cars, trucks, roadsters, runabouts, motor boats and motor buggies, and rear axles for delivery wagons and motor buggies, made by the Ross Gear & Tool Company, Lafayette, Ind., are illustrated in the new catalogue issued by this concern. Four types of steering gears are manufactured, one for use on three and five-ton trucks, weighing 80 pounds; one for trucks of one and one and a half tons' capacity, weighing 38 pounds; practically the same one as the latter for use on heavy runabouts and touring cars; and the fourth for use on light delivery wagons, runabouts, and motor buggies. Features of the Ross gears are their large bearing surfaces, elimination of points, lines, and small surfaces of contact. They are oil tight and dust proof. The rear axle assemblies are made with spiral gears which will coast as easily as ordinary bevel gears or chains. The sets of ball bearings are used and the differential is of the bevel gear type. A specialty is made of cutting bevel gears.

S. F. Bowser & Co., Fort Wayne, Ind.—Under the interesting title of "The Law's Demand," S. F. Bowser & Company are sending out a little book of eight pages descriptive of the storage gasoline outfits made by them. Outfit No. 41 describes the long distance arrangement with tank underground and pump in the building. No. 47, on the same style, is for smaller places such as private garages. Nos. 45 and 46 are self-contained and are designed to be buried alongside of the driveway or near temporary residents. The latest product is the cabinet in which is combined the business end of both the gasoline and oil storage outfits. This is a handsome cabinet, arranged in any desired finish and gives to the garage those finishing touches which only equipment and furniture of beauty and refinement can give. The title of the book comes from the fact that nearly all of the larger cities have very rigid laws against the surface storage of gasoline on any other method than underground storage.

W. H. McIntyre Company, Auburn, Ind.—The advance sheets of this firm's 1909 catalogue show that by the addition of Model 200 express wagon, the line of high-wheeled cars is complete. It includes buggies, surreys, limousines, runabouts, one, two and three-seated pleasure vehicles, express wagons, mail wagons, open and covered delivery wagons and others. The power varies according to the nature of the car and the work to be done; two-cylinder 10-horsepower up to four-cylinder 28-horsepower, all air-cooled. The new Model 200 has a two-cylinder 4 1/2 x 4 1/2 air-cooled motor, rated at 16-18, 100-inch wheel-base, two spread planetary transmission, double chain drive, 38-inch wheels with 1 1/2 solid tires, and weighs 1,800 pounds.

Williams Foundry & Machine Company, Akron, O.—Akron clutches for factory line shafts and power transmission machinery are described in a 28-page catalog published by the Williams Foundry & Machine Company, illustrating the use of friction disc couplings. The advantages accruing from their use, such as separation of the various parts of the shafting for repairs, or when not in use, without disturbing the other departments of a plant, are explained at length. Nineteen sizes are made, with capacities of from 1/2 to 1,000-horsepower at 100 r.p.m. Compression grease cups are also made.



Grabowsky Power Wagon Delivers Lorain Hose Cart Over Roads

New uses are continually being found for commercial motor-driven vehicles, and one of the latest is the delivery of fire apparatus over the roads from the makers in one city to the users in some other. In this case a Grabowsky power wagon pulled a hose cart from Cleveland to Lorain, O., a distance of 30 miles, over very rough roads. There were no delays, and the time was but a few hours, which is slight as compared with the time it would have taken horses to do the same work.

Information for Auto Users

Michelin Plastic Cement—There may be other parts of the car which get more attention than the tires, but there is no other part which deserves as much of the autoist's attention. Thus, the owner and driver should watch his tubes and shoes, the latter for cuts caused by glass or pointed stones, the former for signs of injury due to punctures or other causes. These places in the fabric should receive immediate attention, and in this way dirt or moisture is prevented from working into the ragged openings, where it can do the maximum amount of damage. A very satisfactory preparation for effecting permanent repairs in all makes of tires is the new cement, Michelin Mastic, made by the Michelin Tire Company, with an American factory located at Milltown, N. J. This is not a liquid, but a plastic cement, and is put up in one and two-ounce cans. Its use is economical, as a very small quantity is required at any one time, nor does it deteriorate with age. Its use is simplicity itself, and with the instructions furnished by the makers the veriest novice can preserve his tires with it. It is equally serviceable for repairing punctures along the roadside.



MICHELIN CEMENT.

Tucker Self-Locking Grease Cup—As the use of compression grease cups increases, being now used on practically every part of the car not supplied from a lubricator lead, more thought is being



TUCKER SELF-LOCKING GREASE CUP.

given to the design and construction of these simple lubricating devices. One of the newest ideas is a profanity saver, all right, for a grease cup without a cap is worthless, and the loss of caps is a frequent happening. The cups now being marketed by the firm of W. W. & C. F. Tucker, Hartford, Conn., have a simple locking device, which prevents these losses. The lock is placed on top of the ordinary cup in the handiest possible position. To unlock it all that is necessary is to push the small additional top part downward and turn to the right, which turn locks it open. After filling the reverse operation suffices to lock it in the closed position. Tuckers make a number of other styles of grease and oil

cups, but the positive locking device is given preference over all of the others because of the much greater demand for this very superior form.

Bosch Steering Wheel Switch—Many an automobilist has wished for an easily applied steering wheel switch of the push-button type, and now this may be had in such shape as to permit of its attachment to any steering wheel, and so plain as to allow of the work being done by any one. It may be used for opening or closing the ignition circuit for starting and stopping the motor, or for use with an electric signalling horn. It consists of a nickel-plated body and a head of hard fiber. The body is provided with one flange and a thread, upon which another flange in the form of a nut provides a variable means of fastening the device to the wheel. The internal construction is such that it may be placed with the button head either above or below the spokes of the wheel, as desired. It is made and marketed by the Bosch Magneto Company, which has its main American headquarters at 225 West Forty-sixth street, New York City.

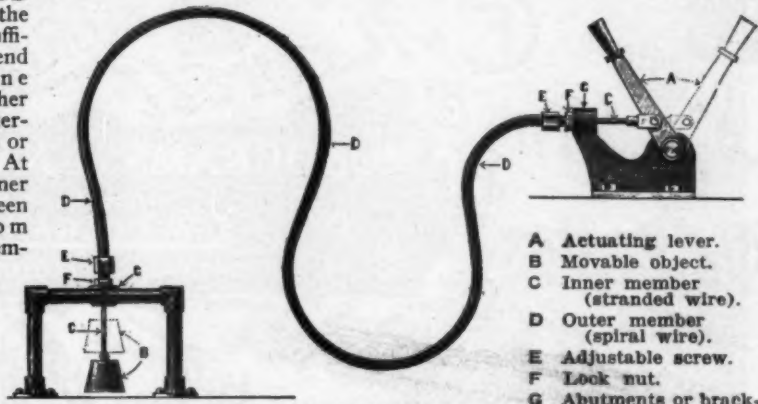
Novel Form of Controlling Mechanism—With the view of supplanting the usual rod and rocker connections for controlling the throttle, spark or auxiliary air valve on automobiles, motorcycles and motor boats, and of saving time in the installation of control devices when assembling, the Bowden wire mechanism was first introduced, and its popularity and suitability for such purposes is shown by its widespread adoption in Europe at the present time.

The mechanism consists of but two parts, a closely coiled and practically incompressible spiral wire, constituting what is termed the "outer member," and a practically inextensible wire cable threaded through the above and termed the "inner member." The operation of the mechanism is as follows: Imagine two points, one where there is an object to be moved and the other where the necessary power is to be applied. In the sketch DDD is a length of the mechanism sufficient to extend from the one point to the other around any intervening corners or obstacles. At CC the inner member is seen emerging from the outer member and attached at one end to the actuating lever, A, and at the other to the object to be

moved, B. The outer member is anchored at GG, which anchoring points may be placed wherever convenient. If the lever, A, is now operated, the movement is at once imparted to the other end of the inner member, the outer member exhibiting a wriggling movement at the curves as the inner member attempts to straighten out and is prevented from doing so by the outer member, which cannot shorten, at it is anchored at both ends. The dotted lines show the lever A in its actuated position and the object B correspondingly raised. Adjustable stops, EE, are provided, the extension or screwing out of which is equivalent to lengthening the outer member, thus compensating for any settling or "bedding down" of the inner. These stops are held in position by lock nuts, FF. The sketch shows the form most in use, a pull being obtained in this arrangement. If a pushing motion is desired the inner member is anchored and the outer member attached to the lever, while if neither member is anchored, but both are fixed relatively to each other, when one pulls the other pushes and a relative displacement is thereby readily obtained.

The wire is made in a number of styles of finish to correspond with the plating on the car and for either external or internal use. Various controlling levers, brakes and attachments for use with the mechanism are also manufactured. The Bowden wire output is controlled by the J. S. Bretz Company, of New York City, which has the sole selling rights for America.

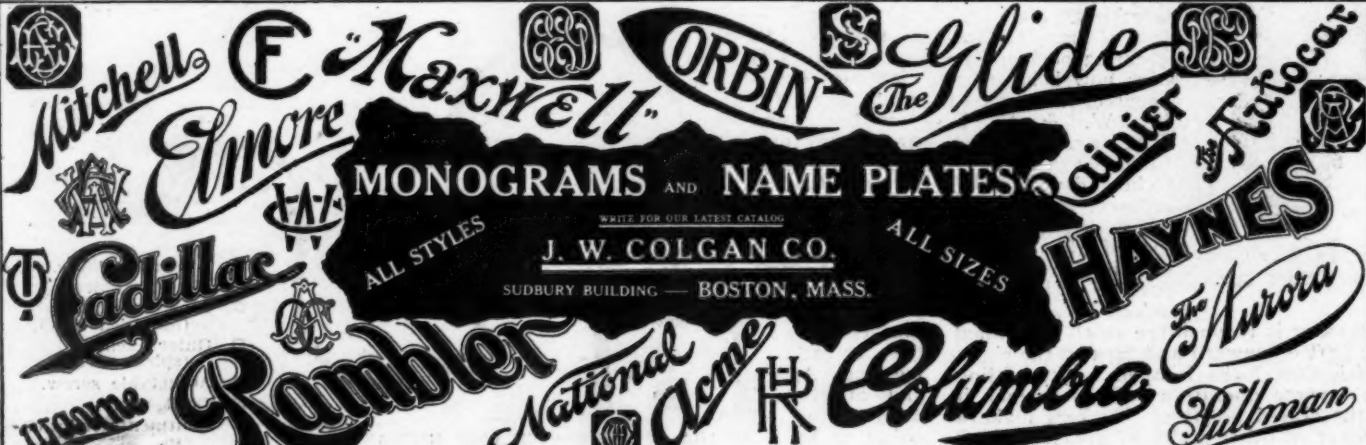
The Autoist's Old and Good Friend—Probably the first automobilists used in their gear cases the same lubricant that is so widely used now, Albany Grease. This is made by Adam Cook's Sons, New York City, and the distinctive trademark of the boy sliding down the plank is perhaps as well and thoroughly known as any one part or accessory entering into the construction of the whole car. This old-established lubricant is now made in no less than seven densities, for as many purposes. These are both numbered and lettered, according to advancing density, from 0 to 3 and X to XXX. The grease may be had in one, five, ten, twenty-five and fifty-pound cans, as well as kegs containing 125 pounds. As it is impossible to churn or agitate this product so as to cause it to lose its density, it is asserted that the use of it is a source of marked economy. With the increase in the already large number of places on an automobile which are lubricated, an old standby in lubrication like this is widely appreciated.



- A Actuating lever.
- B Movable object.
- C Inner member (stranded wire).
- D Outer member (spiral wire).
- E Adjustable screw.
- F Lock nut.
- G Abutments or brackets.

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Ajax-Grieb Rubber Co.	64	Cutter, G. A.	82	Konigslow, Otto	62	Rex Mfg. Co.	84
Allen Auto Specialty Co.	97	Dayton Motor Car Co.	90	Lansing Wheelbarrow Co.	80	Rex Wrench Co.	81
American Ball Bearing Co.	64	Dayton Rubber Mfg. Co.	64	Lavalette & Co.	95	Reynolds, Harry H.	66
American Belting & Tanning Co.	84	De Luxe Motor Car Co.	60	Leather Tire Goods Co.	81	Robert Instrument Co.	61
American Carburetor & Imp. Co.	84	Detroit & Cleveland Nav. Co.	65	Lehman Mfg. Co., J. H.	61	Rome-Turney Radiator Co.	86
American Motor Car Co.	89	Diamond Chain & Mfg. Co.	92	Leland Co., W. H.	86	Royal Equipment Co.	87-61
American Motor Truck Co.	65	Diamond Rubber Co.	62	Levy, Manasseh	63	Rushmore Dynamo Works	106-107
Apple Electric Co.	74	Dietz Co., R. E.	120	Lexington Motor Car Co.	100	S. M. Supplies Co.	63
Ashton Valve Co.	61	Dixon Crucible Co., Joseph	68	Life Publishing Co.	61	Salisbury Wheel & Mfg. Co.	61
Asphalt Ready Roofing Co.	63	Dow Tire Co.	89	Lipman Mfg. Co.	62	Safety Device Co.	77
Atwater-Kent Mfg. Works	60	Driggs-Seabury Ordnance Corp.	62	Lobe Pump & Machinery Co.	61	Schenectady Spark Plug Co.	82
Audel, Theo.	72	Duplex Co.	62	Locomobile Co. of America	64	Schrader's Sons, A.	74
Austin Automobile Co.	88	Duplex Coil Co.	103	Long Arm System Co.	63	Schubert Bros. Gear Co.	61
Austro-American Separator Co.	119	Eclipse Machine Co.	62	Long Mfg. Co.	81	Selden Motor Vehicle Co.	87
Automobile Trade Directory	79	Edmund & Jones Mfg. Co.	68	Loring Auto Appliance Co.	61	Shaler Co., C. A.	70
Auto Car Mfg. Co.	99	Eldredge Electric Mfg. Co.	61	Lucas & Co., John	68	Sireno Co.	61
Auto & Supply Mfg. Co.	61	Empire Tire Co.	81	M. & E. Mfg. Co.	66	Skinner & Skinner	94
Automobile Blue Book	104-67	Everett-Metzger-Flanders Co.	116	Masury & Son, John W.	92	Smith Co., A. O.	92
Bacon & Fynney	82	Excelsior Supply Co.	70	Mathewson Automobile Co.	122	Smith Mfg. Co., I. J.	81
Baker Mfg. Co.	70	Excelsior Tire Co.	60	Maxwell-Eriscow Motor Co.	124	Spacke Machine Co., F. W.	62
Baldwin Chain & Mfg. Co.	62	Fedders Mfg. Co.	83	Mayo Radiator Co.	cover	Spare Motor Wheel of America	62
Banker Windshield Co.	82	Firestone Tire & Rubber Co.	105	Merrill Mfg. Co.	63	Speed Changing Pulley Co.	80
Barndt-Johnson Auto Supply Co.	83	Fish, Geo. L.	109	Metz, Chas. H.	87	Speedwell Motor Car Co.	72
Barrett Mfg. Co.	126	Fisk Rubber Co.	96	Michelin Tire Co.	90	Spicer Universal Joint Mfg. Co.	67
Bartholomew Co.	101	Flentje, Ernst	84	Midland Motor Co.	83	Sprague Umbrella Co.	80
Beaver Mfg. Co.	87	Fort Pitt Motor Car Co.	64	Miller, Chas. E.	97	Standard Co.	98
Beifuss Motor Co.	86	Franklin Mfg. Co., H. H.	88	Mitchell Motor Car Co.	88	Standard Connecting Rod Co.	70
Berry, A. Hall	77	Fried-Ostermann Co.	85	Model Automobile Co.	125	Standard Koller Bearing Co.	62
Billings & Spencer Co.	61	Gaeth Automobile Co.	88	Moline Automobile Co.	89	Standard Sales Co.	61
Bl-Cal-Ky Auxiliary Spring Co.	60	Geerless Motor Car Co.	64	Moon Motor Car Co.	64	Standard Sheet Metal Co.	96
Bl-Motor Equipment Co.	86	General Accumulator & Battery Co.	95	Mora Motor Car Co.	cover	Standard Welding Co.	74
Black Mfg. Co.	60	Gilbert Mfg. Co.	69	Morgan & Wright	102	Stanley & Patterson	77
Bongartz Co.	66	Goodrich Co., B. F.	113	Mosier & Co., A. R.	73	Star Speedometer Co.	cover
Borbeln Auto Co.	60	Goodyear Tire & Rubber Co.	86	Moss Photo Engraving Co.	114	Stearns Co., F. B.	97
Borne Scrymser Co.	91	Gordon Automobile Supply Co.	85	Motor Car Equip. Co.	66	Stein Double Cushion Tire Co.	85
Boston Auto Gage Co.	61	Grabowsky Power Wagon Co.	117	Motz Clincher Tire & Rub. Co.	64	Stevens-Duryea Co.	121
Boston Y. M. C. A.	76	Gramm-Logan Motor Car Co.	64	Muffy Co., L. J.	60	Stewart & Clark Mfg. Co.	71
Bowser & Co., S. F.	62	Grand Rapids Spring Co.	65	Myers Auto Top Co.	74	St. Louis Supplementary Spiral Spring Co.	85
Boyle & Co., John	85	Gray & Davis	88	N. Y. Sporting Goods Co.	65	Stromberg Motor Device Co.	cover
Brennan Motor Co.	83	Grossman Co., Emil	106-107	National Brake & Clutch Co.	62	Studebaker Automobile Co.	88
Bretz, J. S.	72	Grout Automobile Co.	64	National Motor Vehicle Co.	98	Swinehart Clincher Tire & Rubber Co.	64
Brown Co.	74	Guide Motor Lamp Co.	63	Neustadt Auto & Supply Co.	84	Syracuse Alum. & Bronze Co.	62
Brown & Co., S. N.	74	Ham Mfg. Co., C. T.	66	New Departure Mfg. Co.	101	Syracuse Chemical Fire Extinguisher Co.	76-89
Brownell Motor Co., F. A.	83	Hansen Mfg. Co., O. C.	84	New York Auto Lamp Co.	83	Thomas Motor Co., E. R.	89
Brush Kunabout Co.	89	Hardy Co., R. E.	61	New York Gear Works	73	Timken Roller Bearing Axle Co.	91
Buckeye Jack Mfg. Co.	69	Harris Oil Co.	94	Nicola Building Co.	93	Tiresele Mfg. Co.	75
Buckeye Mfg. Co.	89	Hart-Kraft Motor Co.	88	Nightingale Whistle Mfg. Co.	93	Tray Plate Battery Co.	63
Buffalo Specialty Co.	95	Hartford Suspension Co.	81	Norokoda Co.	62	Trenton Rubber Mfg. Co.	60
Buob & Scheu	65	Haynes Automobile Co.	88	Nordyke & Marmon Co.	64	Trimont Mfg. Co.	74
Burnett-Compound-Spring Co.	81	Heinze Electric Co.	68	Nuttall Co., K. D.	62	Tucker, C. F.	61
Burrowes & Co., E. T.	65	Hemmeter Spark Plug Co.	86	Olds Motor Works	64	U. S. Fastener Co.	76
Cadillac Motor Car Co.	64	Hercules Electric Co.	60	Omar Motor Co.	110	Uncas Specialty Co.	69
Cameron Car Co.	75	Herschell-Spillman Co.	62	Orange Machine & Mfg. Co.	80	Underwood Typewriter Co.	94
Canton Drop Forging & Mfg. Co.	62	Herz & Co.	111	Overland Automobile Co.	110	Universal Tire Protector Co.	84
Carpenter Co., W. D.	85	Hess-Bright Co.	62	Owen & Co., R. M.	84	Vacuum Oil Co.	95
Carr, F. S.	83	Hill Dryer Co.	62	Packard Electric Co.	80	Veeder Mfg. Co.	100
Central Engraving Co.	80	Hoffecker Co.	80	Packard Motor Car Co.	128	Vehle Motor Vehicle Co.	99
Chadwick Engineering Works	78	Hoffman, Geo. W.	61	Palmer & Singer Mfg. Co.	64	Victor Tire Traction Co.	64
Chandlee & Chandlee	66	Holtzer-Cabot Electric Co.	82	Pantasote Co.	66	W. D. Spring Cushion Tire Co.	80
Clark Carriage Co.	60	Hopewell Bros.	73	Parish & Bingham	62	Warner Instrument Co.	91
Cleanola Co.	75	Hotel Gibson House	84	Parker Mfg. Co.	63	Weed Chain Tire Grip	80
Cleveland-Canton Spring Co.	62	Hoyt Woodstock	66	Parker, Stearns & Co.	83	Weston Elec. Instrument Co.	74
Coates Clipper Mfg. Co.	108	Hoyt Electrical Ins. Works	103	Peerless Motor Car Co.	cover	Wheeler & Schebler	112
Colgan Co., J. W.	56	Indestructible Steel Wheel Co.	62	Peerless Specialty Co.	90	White Co.	123
Collins & Son, G. A.	82	Interstate Automobile Co.	87	Pennsylvania Auto Motor Co.	87	Whitlock Coil Pipe Co.	75
Columbia Lubricants Co.	65	Jackson Automobile Co.	64	Perfection Non-Skid Climber Co.	94	Whitney Mfg. Co.	74
Conn. Tel. & Electric Co.	102	Jacobson Machine Mfg. Co.	82	Perfection Spring Co.	92	Wildner Machine Works, C. A.	81
Continental Caoutchouc Co.	64	Jeffery & Co., Thomas B.	127	Petre Carburetor Co.	92	Willard Storage Battery Co.	93
Continental Motor Mfg. Co.	68	Jewell Motor Car Co.	66	Petrol Motor Car Co.	77	Willett Engine & Carburetor Co.	90
Corbin Motor Vehicle Corp.	90	Johnson Sporting Goods Co., I.	66	Peugeot Freres	62	Winship, W. W.	75
Cornish Friedberg Motor Co.	64	K. W. Ignition Co.	86	Pitcher & Stone	85	Winton Motor Carriage Co.	87
		Karl Co., Adolph	61	Pittsfield Spark Coil Co.	93	Witherbee Igniter Co.	61
		Kellogg Mfg. Co.	76	Premier Motor Mfg. Co.	115	Wyman & Gordon Co.	60
		Kellom & Co., Chas. F.	68	Prest-O-Lite Co.	108	York Motor Car Co.	100
		Kemzite	99	Prosser & Sons, Thos.	76		
		Keystone Lubricating Co.	103	Puritan Gas Tank Co.	62		
		Kimball Tire Case Co.	69	Quincy-Manchester-Sargent Co.	76		
		Kinsey Mfg. Co.	74	Raines & Co.	61		



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